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ABSTRACT

Demographic, biological, psychosocial and environmental data on 400 black and white families of lower middle and lower socioeconomic backgrounds were collected and synthesized to determine the factors influencing the development and acculturation of children born in urban Baltimore. A research team of pediatricians, epidemiologists, psychologists, sociologists, and biostatisticians viewed the progress of these children and their families from the mother's first prenatal care visit to the child's 12th birthday. Seventy-seven children born to adolescents were chosen for special study. Although the study families endured a high degree of stress, most moved on to better incomes and better homes. Children had high self concepts despite the fact that their academic performance tested well below the national average. Children of adolescent mothers experienced many more problems at school and home than children of older mothers. Biologically, successful children were larger and more developed than children who were academic failures. Moreover, it was determined that academically successful children had two parents who were better educated, experienced less stress, had higher coping skills and generally provided more stable home environments for their children than the parents of unsuccessful children. (Author/KR)

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THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE

SOCIALIZATION OF THE URBAN CHILD

THE JOHNS HOPKINS CHILD DEVELOPMENT STUDY

Final Report to the Office of Child Development -
Agency for Children, Youth and Families

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SOCIALIZATION OF THE URBAN CHILD

THE JOHNS HOPKINS CHILD DEVELOPMENT STUDY

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(c) Long-Range Outcome of Adolescent Pregnancy

A LONGITUDINAL STUDY OF CHILDREN SOCIALIZED IN FOSTER HOMES; BY GRANDPARENTS; OTHER RELATIVES OR IN NUCLEAR FAMILIES: 14 - 18 YEARS FOLLOW-UP

GENERAL SUMMARY AND CONCLUSIONS

The report submitted herewith, represents a major effort, on the part of a multidisciplinary research team, to synthesize data from a prospective, multidisciplinary, longitudinal study of biological and environmental factors influencing child development. The phase of the study reported here is concerned with factors influencing the socialization of 12 year old children born in urban Baltimore. Data collection extended almost 13 years, from the mother's first visit for prenatal care to the child's 12th birthday, or a little beyond. The study included both black and white families, initially of lower middle and lower socio-economic backgrounds and living, for the most part, in East Baltimore. The study population consisted of a representative subsample of more than 400 children born in the late 1963 and 1964 who were enrolled in the Johns Hopkins Child Development Study.

The data available included demographic, biological, psychosocial and environmental variables systematically collected according to a defined protocol. New dimensions added at the 12 year follow-up provided: (1) measures of socialization and concomitant psychological variables for the child; and (2) information pertaining to ecological variables which may have influenced the degree of socialization attained.

GENERAL SUMMARY (cont'd)

These data were, for the most part, collected by interview with the mother, or principal caretaker of the child.

The tasks required of the research team and supportive personnel involved the selection of the sample, development and pretesting of instruments, the collection and processing of voluminous new data, the preparation of a data file consisting of many items about each child and family selected from the 'master' JHCDS files, and, the addition of the newly collected data to complete the information pertaining to this study. As the data were extensive, their collection and processing was a formidable task, accomplished for about 416 (89.3%) of the 466 cases selected.

The multidisciplinary research team, which represents pediatrics, epidemiology, psychology, sociology and biostatistics, has worked together for many years in relation to this study population. The principal investigator has worked with East Baltimore children since the mid-1940's. We have, therefore, historical and geographic perspectives which, at least for us, have provided some bench marks against which to view the progress of these families over the years.

GENERAL COMMENTS

In our view, major sociological and economic changes have, in general, occurred among the study families over the duration of the study.

GENERAL SUMMARY (cont'd)

These, for the great majority of families, have been good. Changes have also occurred in East Baltimore; these ran the gamut from increasing decay, blitzing to make room for urban renewal and finally, renewal, both publicly and privately financed. Concomitantly, there has been increased home ownership and increased pride on the part of inhabitants. Because the children have lived in changing environments it has seemed to us important to provide some description of these changes, particularly as they could be related to the study families.

SPECIFIC COMMENTS

Mobility

The report demonstrates both the mobility, in general, and the upward mobility in particular, of the great majority of study families, over the 12-13 year period. By the end of this period, only 8% of the study families had not moved since the birth of the index child. Most had 'fanned' out toward the suburbs, to better houses in more substantial neighborhoods. Family income had, for the most part, advanced well beyond the proportion which could be explained by inflation alone. Home ownership had increased. Educational attainment of mothers, and fathers also, had appreciably increased after the birth of their

GENERAL SUMMARY (cont'd)

study child, leading, in turn, to better employment opportunity. Average family size seemed to be considerably smaller than 15 to 20 years earlier, largely as a result of sterilization procedures for women with several children, rather than abortion and effective contraception.

Stress

The general improvement in living conditions notwithstanding, these families, even those who were successful in their upward mobility and in raising academically successful children, experienced very large amounts of stress over the years. Among those with academically unsuccessful 12 year olds, 68% had, on one or more occasions (or chronically), experienced want, i.e., they had insufficient resources for the basic necessities of shelter and food; this was also the case with 48% of the families of academically successful children. There were also problems with divorce, drugs, death, the police and many other aspects of life.

Strengths

One cannot help but be impressed with the strength and endurance of many of the families. Relatively few middle class adults in our society can conceive the magnitude and complexity of the problems of the poor and the limitations, in terms of resources, both informational

GENERAL SUMMARY (cont'd)

and financial, for dealing with those problems. An experience such as the opportunity to examine data from a study such as this leads one to appreciate the toughness, the strengths and the endurance which has enabled these families, over the years, to materially improve their standard of living.

Coping

One of the major strengths exhibited has been the ability to cope. It is our observation that mothers who recognize a problem, appreciate what is needed, are able to mobilize the necessary resources, their own or those of the community, provide role models for their children, who are in turn better able to cope with their own problems. Mothers who perceive that they can cope, seem better able to deal with stress.

Optimism

Another strength, which is perhaps related to successful coping, is a general feeling of optimism, a feeling that things are better than they were 12 years ago. This feeling may have its roots in the fact that living conditions are, in general, considerably improved for these study families. Many of them have moved from the lower to the middle brackets socio-economically. A few have children in private schools.

GENERAL SUMMARY (cont'd)

How have these changes come about? Is it simply a phenomenon of aging of the family? Does increased age of parents bring increased experience and skills which have a greater market value? These are difficult questions to answer with this data base. The answers are not simple linear relationships because some families have done much better than others. Education seems to be an important mediating variable and there are others such as family stability. There is no doubt in our minds that the 'Great Society' programs of the late 60's and early 70's, which called for affirmative action and provided additional education, day care and job opportunities for minorities and poor women, have been influential in fostering the changes we have seen.

Diversity

One cannot help but be impressed by the great diversity in family characteristics in this originally inner-city population. As a result, the view of the urban poor as a homogeneous group is untenable. The families and individual children within them exhibited a great diversity in characteristics and strengths.

Intellectual Functioning and School Performance

Compared with national norms, the children in this population (as expected) functioned at a generally low level. However, it may be

GENERAL SUMMARY (cont'd)

that standard IQ tests are to some extent inappropriate. Low academic skills may reflect a variety of factors relating to the child, his family and the school. Our present studies with follow-up of a population of adolescent mothers and their infants suggest that delay in language acquisition may be a problem which starts very early, in failure of adequate parent-child communication. Perhaps this is a precursor of later difficulties in learning language.

Self Concept

The generally high levels of self-concept observed among the children would appear to be one of the strengths. However, comparison between academically successful and failing 12 year old children indicated that the latter had generally lower levels of self concept.

Adolescent Pregnancy

An examination of the long-range outcome for adolescent mothers and their children indicated that both, on the average, experienced more problems than older mothers and their children. The children of adolescents, in general, had lower academic achievement. The adolescent mothers, themselves, were at a striking disadvantage as compared with mothers 20-24 years of age, of similar parity. Their educational attainment was less, they had less stable family environments,

GENERAL SUMMARY (cont'd)

lower occupational status and greater welfare dependency. In addition, the adolescents had greater fertility during the 12 year period and a much higher frequency of perinatal loss than women of 20-24 years in the comparison group.

Academic Success and Failure

Academically successful children had parents who were, generally, better educated, had higher occupational status and who provided generally more stable environments for their children, particularly during the early years, than the parents of unsuccessful children. While both groups of families experienced substantial amounts of stress during the 12 years, those of unsuccessful children had significantly more stress. The mothers of successful children, more often perceived their coping skills as very good. It is of interest that children of adolescent mothers were equally divided between the successful and failing groups. The successful children of adolescents had homes with two adults present, usually mother and father, while the failing children of adolescents were generally in single parent homes with only one adult present.

Biological Influences

The high frequency of possible biological insults and less favorable physical development among the children who failed was of great interest,

GENERAL SUMMARY (cont'd)

particularly in view of the fact that the selection process for this group, rejected children with recognized physical and/or intellectual deficits.

Social Well Being Index

The ecological data pertaining to environmental influences on child development were collected within the framework of a social well being index. Not only did this provide a useful structure for data collection, preliminary use of the index provided promising results.

FINAL COMMENTS

This report should be considered as the first descriptive phase of reporting data from a large longitudinal study. A more detailed investigation permitting examination of interactions between variables could, in our view, prove highly rewarding. For example: (1) interactions between biological insults such as prenatal complications and/or low birth weight and socio-environmental influences and academic outcome; (2) relationships between measures of self concept, performance on the Kinetic Family Drawing Test and academic achievement, might throw light on the child's behavior and suggest strategies for improving school performance; (3) examination of inconsistencies in intellectual functioning, school performance and environmental

GENERAL SUMMARY (cont'd)

factors might have implications for intervention; (4) similarly examination of alternative dimensions of success could be rewarding; (5) the relationships between the Social Well Being Index and its components require detailed exploration. Can these components be rank ordered in terms of predictive value? This kind of investigation might also provide leads for intervention because some components can be manipulated.

The first stage of orderly analysis, i.e., the descriptive phase which permits genesis of testable hypotheses has been carried out and this report is reflective of that effort. It is our hope that some way can be found to permit the next level of analysis, permitting more sophisticated methodological and statistical exploration. For example, ECTA* (Everyperson's Contingency Table Analyzer), a form of log linear analysis. Multivariate techniques, particularly, discriminant functions might also prove useful, but small sample size might prove a problem.

It is believed that the data presented in this report and that from the analyses eluded to above could form the basis of a major volume on the growth and development of children in urban families.

* James A. Davis: "Hierarchical Models for Significance Tests in Multivariate Contingency Tables: An Exegesis of Goodman's Recent Papers Sociological Methodology (1973-74), pp. 189-231.

* H. T. Reynolds, "Some Comments on the Analysis of Surveys with Log Linear Models, American Journal of Sociology, Vol. 83, July, 1977, pp. 127-143.

THE JOHNS HOPKINS CHILD DEVELOPMENT STUDY

SOCIALIZATION OF THE URBAN CHILD

Final Report to OCD

INTRODUCTION

The purpose of this study was to investigate factors influencing the socialization of urban children.

This report summarizes work carried out over a period of approximately two and one-half years with support received, in large measure, from the Office of Child Development (now the Agency for Children, Youth and Families). The support provided for the addition of an examination of certain aspects of the socialization process in an ongoing, prospective, multidisciplinary study of child development in an urban population of black and white children and their families. The Johns Hopkins Child Development Study (JHCDS), a longitudinal investigation of almost 5000 pregnancies and the surviving children, yielded over the years a wealth of demographic, biological (medical) and behavioral data. These data were collected over a period extending from the mother's first visit for prenatal care through the child's eighth birthday. A very high rate of follow-up was achieved for each visit and 88% of the children discharged alive from the newborn nursery were successfully

examined at the 8 year visit. A representative subsample of 466 children was selected, from the total study group examined at 8 years, for investigation from the ecological point of view at the 12 year age level.

Socialization is the process by which children become acculturated, i.e., adapted to the requirements of the society (or segment thereof) within which they live. This process involves development of: (a) an array of skills basic to communication and problem solving (i.e., language, reading, math); (b) at least minimal understanding of general scientific principles, civics, history and the humanities; and (c) a degree of social maturity and tolerance facilitating interaction with others. In our highly competitive, technological society, those who fail to achieve these basic skills are at high risk of being left out of the mainstream of society and because of educational and employment problems, are likely to perpetuate the poverty cycle, and to experience a higher frequency of social pathology than those whose achievement patterns fit the norm. Socialization is but one aspect of a much broader process, an understanding of which is essential to the investigation of factors which affect social development.

The Developmental Process is an integral set of stages of life through which every individual passes on the way to adulthood. The

parameters of physical, cognitive and psycho-social development are identifiable components of a complex individual gestalt. There is, obviously, a basic genotypic timetable with respect to aspects of physical and cognitive development; acquisition of 'milestones' in these areas is, in general, quite similar for all races of man. Social development follows similar but less well defined patterns.

Genotypic similarities notwithstanding, there are specific phenotypic differences in many racial and individual characteristics. Some of these, for example, the physical, racial characteristic of skin color, have almost certainly resulted from the process of natural selection, i.e., favorable adaption, over many generations, to specific sets of environmental conditions. Other kinds of changes in phenotypic expression in the individual organism may result from responses to more immediate environmental influences, for example, cognitive and behavioral deficits resulting from congenital infection with rubella virus or cognitive and behavioral deficits resulting from severe maternal deprivation.

The developmental status of an individual, at any given point in time, depends upon interactions between genetic endowment and environmental influences to that point. The genetic material provided to the fetus, from mother and father, at the time of conception, can

be viewed as the sum of vast experience involving interaction between genetic and environmental factors stretching back over countless generations. It is this genetic endowment which sets the upper limit of potential for all aspects of development. Figure 1 presents, in diagrammatic form, a model summarizing the developmental process and some of the influences, biological and environmental, which may operate to nurture or reduce the basic potential. The end result at any given point depends on events up to that point.

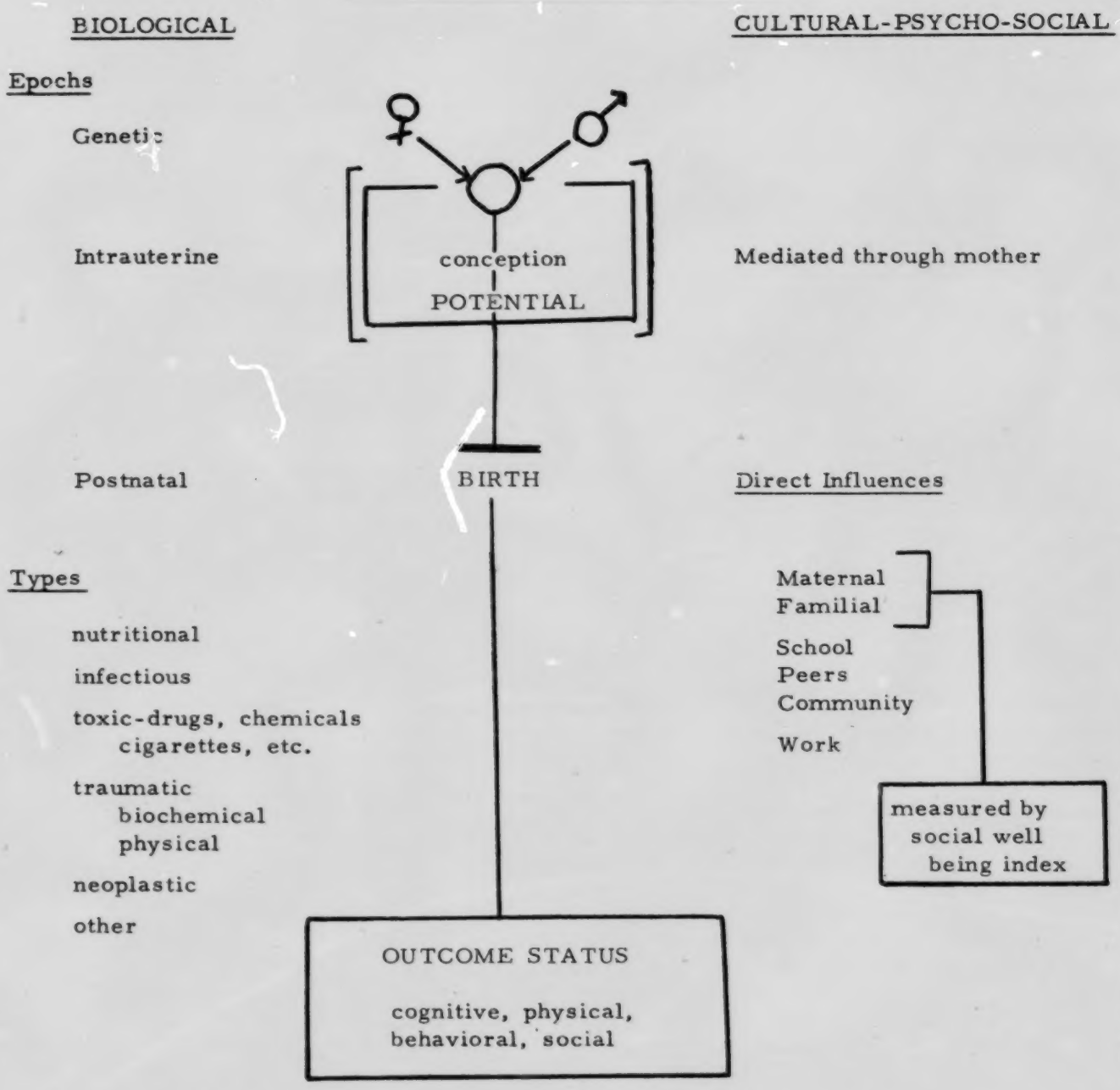
Social development, i.e., socialization, is complex, involving successive interactions over time between the child's biological makeup, (i.e., the innate genetic endowment and physical health characteristics), his/her behavioral characteristics and the environmental factors which influence mental, physical and behavioral development (see diagram, Figure 1). Many environmental factors exert strong influences and act to shape the individual's social behavior and to determine the final level of social maturity or competence attained.

The family, because it provides the primary interaction environment for the child, plays a critical role in determining patterns of the child's behavior with respect to the environment of the school, the other major institution for socializing young children, and the greater environment of the community.

FIGURE 1

BIOSOCIAL DETERMINANTS OF DEVELOPMENT

I N F L U E N C E S



During the past 25 years, increasing public concern for the well being of all citizens, but particularly for the health and welfare of children, has led to massive expenditures of money and effort (particularly in the social intervention programs of the 1960's) to improve the lot of poor and minority group children. Many of these programs have been considered less than successful in their effect. A general belief had prevailed that equality of educational opportunity was the key, and that equal education would break the poverty cycle. Based on the premise that the generally substandard school performance of poor and minority group children reflected an inequality of educational opportunity, the Congress of the United States ordered, and the U.S. Office of Education commissioned, the survey which led to the study resulting in the Coleman Report, "Equality of Educational Opportunity," (1966). The survey encompassed more than half a million children and 60,000 teachers in some 4000 schools across the country. Many variables were examined. The results of the Coleman survey seemed to demonstrate clearly that, while some aspects of the schooling process had some impact on the educational attainment of children, these effects were small as compared with the very large impact of the family background. The 'in-school' difference between children was very large as compared with the variance between schools.

Coleman (1966), in a presentation of findings from the report, concluded ..., "altogether the sources of inequality of educational opportunity appear to lie first in the home itself and the cultural influences immediately surrounding the home."...

The Harvard Seminar "On Equality of Educational Opportunity," edited by Mostellar and Moynihan (1972), in general, supported and extended the findings of the Coleman Report, and like the latter emphasized the need for research on a broader ecological basis.

Hanushek and Kain (1972) in their critique of the Coleman Report point out ... "The extent to which minority groups are systematically discriminated against is still unknown. This is a serious matter since the correction of input inequalities (i.e., those the child brings with him to school) is a logical and necessary first step in insuring the equality of opportunity for minorities." They go on to say that the most critical error in the report was failure to collect and use data on "school inputs" for individual children. Furthermore, they make the point that family characteristics which are measured for the individual are more accurate and have less error in a model of individual achievement than grouped data; as a result, the apparent explanatory power is increased.

These observations fit with our own longitudinal studies. The cross-sectional approach to the Coleman Survey may suffer in part

from the ecological fallacy (Clausen and Kohn, 1970) inherent in some cross-sectional surveys based on grouped data from schools, census tracts or other geographic groupings which tend to bury important ecological interactions having their origins in differences within the group. For example, in our study population, the average school performance is below national norms, as is the average family income, yet, one child of average intelligence will adapt and succeed in school, while the child next door, of the same race, sex and intellectual endowment, does not. What ecological factors account for the difference?

The children in this study are from black and white families living initially in the inner-city areas of Baltimore, in lower and lower-middle socio-economic circumstances. Generally speaking, previous studies of similar populations, based on census tract and other grouped data, have resulted in descriptions of such populations in homogeneous and generally depressing terms with socio-pathological connotation. The result of studies based on grouped data has been that persons in lower socio-economic positions are often perceived as being alike with respect to most other aspects of their lives. If life style can be seen as a reflection of the composite role a social actor embraces, then from the concomitant behavioral patterns

observed, it is clear that great variability will inevitably be present. Although the influence of available resources upon both the roles played and the behavior exhibited must be recognized, the assumption of cultural homogenity seems untenable and indeed as one looks below the surface great variability can be discerned. Further, and of analytical importance, to view the children and families in this study as belonging to a homogeneous group would likely result in the fallacy already mentioned and hamper the identification of ecological influences important to the developmental outcome of the children.

Through the twelve year period of this longitudinal study, a number of personal and family strengths and skills have been observed which seem to have permitted many of the families and occasionally even individual children to survive and indeed to move forward and succeed in the face of great obstacles. A major question, then, is to attempt to identify those factors which contribute to successful outcomes in the face of adversity. This is a somewhat new approach as the usual focus has tended to be limited to pathological situations and their etiological relationships, while successful outcomes have been ignored. Because of the multiplicity of biological and environmental factors which determine outcome and the recognized interactions between some of them (for example, maternal age, education

and parity), the teasing out of causal relationships is difficult and a variety of analytical approaches must be employed.

Our understanding of the parameters of health is best expressed by the definition of health of the World Health Organization which includes the parameters of physical, mental and social well being of the individual. This definition has given rise to an increasing awareness that one's location within society may have significant implications for the interpretative framework an individual or his social groupings have toward health. That is, differential locations may result in disparate interpretations of appropriate and inappropriate attitudes and behavior toward health concerns.

Recognizing this expanded concept of health and the possible implications thereof, this study includes an effort to assess empirically the social well being of the parental structure and the urban child and their effect on the socialization process. The conceptual model employed here is expressed by the Social Well Being Index developed by Lerner (1973 and 1977). Lerner's approach calls for the analysis of the attributes of an individual, social group, community, etc. along multiple dimensions. The index consists of the dimensions of welfare (SES), family structure (or health), coping ability, social participation, and perception of moral worth.

As indicated, the WHO definition of health is multidimensional. Social health, which is only one component, is itself multidimensional. The concept of social health is not as well understood as those of physical and mental health. The conceptual model used here selects five components of social health identified in other studies and puts them together in a structured way so that they may be manipulated, facilitating examination of their possible interactions in relation to selected outcomes. A structure is thus provided in which certain components can be held constant while varying others. The model was incorporated into this study as an analytical tool to provide a frame of reference for the systematic collection of new data at the 12 year age level, their analysis and interpretation.

The absence of objective criteria to measure some of the dimensions of the index is the most serious limitation to its application. Also, in that social well being is a relatively new concept, it was not a specific data target when the Child Development Study (CDS) was begun in 1959. The CDS was initiated with a prospective, longitudinal orientation to child development with the expectation of collecting comparative data at a variety of time periods during the child's development. In order to preserve the integrity of that aim, the data collection instruments, by definition, were standardized. As

physical and intellectual development were primary concerns many of the indications of social well being, in this study, are more accurately labelled proxy measures. However, although the Social Well Being Index has not yet been completely operationalized, nor was it designed by Lerner to assess a pediatric population, it does provide a beginning point. Furthermore, it provides a structure for the systematic evaluation of the family environment in which the study children experienced their primary socialization. The components of the index are described briefly in the following paragraphs.

The welfare dimension describes the family's general level of resources, i.e., income level, educational achievement, and occupational status. Although each of these variables is at least quasi objective, certain operational difficulties are recognized. That is, there are commodities within our society which are not available for market consumption; fluctuations in price levels in general, and differential rates in different areas; barter exchange may be operative which may cause objective interpretations to be subjective; and individual needs will vary in terms of number, age, sex, climate, tastes, and preferences. Despite these limitations, however, it is anticipated that larger income levels, higher educational attainments, and occupational prestige will be associated with a higher state of social well being. In turn, such higher status is expected to relate

to lower school absentee rates for the study children, better scholastic achievement, more special accomplishments, etc. In addition, it is anticipated that the parents will manifest higher achievement expectations for their children.

Family health (structure) is defined in terms of stability as a functioning unit. Stability will be considered in terms of persistence of the family unit over time as opposed to dissolution by divorce, death, separation or desertion. It is recognized that a marital unit may not be healthy per se, but these categories do provide some evidence of an objective nature. In general, families are seen as groups with specific functions. That is, ideally they provide an environment for childbearing and rearing, and provide physical and emotional security for their members. Healthy families, then, remain intact as these functions are fulfilled, while the less healthy break apart prior to the fruition of these aims. Finally, it is anticipated that healthy family units will spend time together in a variety of activities. That is, a qualitative sharing, as well as a quanitative measure is expected.

Coping ability focuses on the manner in which individuals negotiate challenges or crises in their daily lives. The more socially healthy individuals are expected to: (1) be less dependent upon others; (2) take advantage of opportunities for self improvement; and (3) be

aware of available resources, and, in fact, to be resourceful. In terms of measurement, it is recognized that objective indicators for coping are difficult to operationalize. However, a healthy manifestation of this dimension would be reflected in: (1) a lesser likelihood to be dependent on others; (2) an active approach to life's problems; and (3) taking advantage of opportunities for self improvement, etc. An interesting question will be whether one's resourcefulness or ability to cope remains constant with increasing incidents of stress or begins to decrease or increase. Finally, the more capable parents are in handling challenging stimuli, the more capable the offspring are expected to be in negotiating their own challenges.

Social participation is defined as involvement in activities outside of the major social roles, of wage earning, home making, and school attendance. It is anticipated that individuals at the upper end of the social health continuum are more likely to engage in social participation in the life of their communities at more constructive levels. It is argued that such participation represents an enrichment of the quality of their own personal experience. (Clearly this is an assumption!).

Perception of moral worth, will be examined in light of self concept. It is expected that the healthy individuals will conform to the norms of the society, fulfill the obligations of their major social

roles, and avoid major forms of socio-medical pathology, e.g., alcoholism or drug abuse. It can be argued that alienation represents the antithesis of a high self concept. Thus, one effort to assess this dimension will be by the use of the Srole Anomie Scale. High scores (alienation) will be seen as indicative of a low self concept, while low scores will be seen as evidence for a high self concept. It is anticipated that the manner in which parents perceive themselves will serve as a model to the child, and would result in similar levels of self esteem for them.

In that the Social Well Being Index is just now being subjected to an empirical assessment, there is no existing data base on which to note which components will be more accurate as predictor variables. It is not expected that each of the five dimensions will be equally effective in describing, predicting, or explaining a variety of outcome variables individually or collectively, nor that these components are all inclusive.

After making a considerable point about a conceptual model for the investigation of social factors in the development equation, one must direct attention once more to the importance of the interaction between the innate biological characteristics of the child and the environmental influences which interact with them, both prenatally and during postnatal life, to determine final outcome.

OBJECTIVES

This report to the Office of Child Development is designed to accomplish several objectives:

(1) The findings from the selected subsample of JHCDS children studied at the 12 year level will be presented to describe the children, their families and the behavioral and sociological observations made. This will include a description of the study population and its representativeness with respect to the total JHCDS population of 4800 delivered.

(2) Results of several preliminary or pilot studies will be presented. Two of these demonstrate use of the social well being index to provide a structure facilitating development of data. The others represent development of two limited and specific areas of interest. The studies are presented as illustrations of the data available and uses to which they can be put. The results of the first two studies are limited in their conclusions by small sample size, nonetheless, interesting trends are evident and the marked ecological differences in superficially similar inner-city families become apparent. Limitation of time and resources has precluded both detailed examination of larger numbers of subjects and the sophisticated analyses required to develop information pertaining to possible interactions among variables which may influence outcome.

METHODOLOGY

Study Population

During 1964, the last year of intake into the JHCDS, all women registering for prenatal care in the Woman's Clinic of The Johns Hopkins Hospital, who were residents of Metropolitan Baltimore, were enrolled in the study. No exceptions were permitted. Prior to 1964, a random sample of 60% of the population was selected. As previously described*, 77% were black and 23% white. They were, for the most part, residents of East Baltimore in the lower and lower middle socio-economic levels of society. Approximately 4850 mothers were enrolled at the time of the first prenatal visit. They were followed throughout pregnancy, labor and delivery and the postpartum period. Their surviving infants have been systematically followed from the moment of birth in the delivery room, in the newborn nursery and at regular intervals with a variety of assessments through age 8 years. Through the 8 year level, the rate of completed follow-up examinations averaged 88% of children leaving the nursery alive. Table 1 provides a summary of data collected to this point.

A representative subsample consisting of 466 study children born in 1963-64 was reassessed at age 12 years. At this age emphasis was placed on collecting information about socialization, behavior,

*JHCDS population described by Hardy, 1971.

TABLE 1

Summary of Routine Data Collection, Through 8 Years of Age, in The Johns Hopkins Child Development Study

The following data have been prospectively collected and are available:

Family - collected by extensive interview prenatally, demographic - race, age, marital status, education, place of origin, occupation, updated at 7 yrs.

Family constellation - other household members.

Health

Socio-economic status

Stress factors - (collected retrospectively and only at the 8 year level). Available in the records but not on tape.

Changes in residence, name and major problems were identified each year. (available in the records but not on tape); annual interval medical history.

Mother - health, pregnancy factors, labor and delivery, complications.

Education, marital status, occupation, work history, attitudes and opinions collected by interview when child was 8 years old.

Intelligence - SRA and Peabody Picture Vocabulary administered when child was 4 years old.

Child - Observations during birth and neonatal period, physical and neurological assessments during neonatal period, at one year and seven years.

Physical measurements at birth, 4, 8, 12, 36, 48, 84 and 96 months.

Behavioral Development:

(a) At 8 months - Bayley Mental and Motor Scales, behavior profile, maternal/child interaction. Maternal behavior rating scale.

(b) At 36 months - Language, Hearing and Speech assessment Behavioral Profile and Peabody Picture Vocabulary.

(c) At 48 months - Binet Intelligence Test, Graham Blocks (concept formation), Gross and Fine Motor Tests, Behavior Profile.

(d) At 84 months - Weschler Intelligence Scale for Children (WISC), Wide Range Achievement Test (WRAT - Reading, Spelling, Arithmetic), Goodenough Harris Draw-A-Person, Bender Gestalt and Tactile Finger Recognition Tests, Behavior Profile.

(e) At 96 months - Detailed Language, Hearing and Speech Evaluation, Gray Oral Reading Test, WRAT, Peabody Picture Vocabulary and the Bender Gestalt.

Medical history of illness, injuries, hospitalizations, medical care every 6 months to age 4 years then every year through age 8 years.

self concept and academic achievement. In addition, attention was paid to the collection of information about the child's family and socio-environmental variables which may have influenced the child's social development. The data collected earlier in the Child Development Study and at the 12 year follow-up are listed in Table 1. Those collected at the 12 year level are described in the body of the report.

It is the sample of 466 JHCDS children and their families included in the 12 year study which is the subject of this report.

Methodology for Completing Data Collection

Study mothers were contacted initially by letter stating that a 12 year follow-up evaluation of their children was desired (i.e., 12 year old JHCDS child). The letter also indicated our desire to talk with the mother about 'how the child is getting along' and other family events. A special date and time were offered in addition to taxi transportation between home and study center. A return postage-guaranteed postcard was enclosed to facilitate response. Those mothers who did not respond were contacted by telephone or at a visit to the home. In many instances, those who did respond were also contacted in similar fashion in order to maximize utilization of interviewer and psychologist time.

The letter also served another purpose. The face of the mailing envelope requested change of address when this was known to the post office; or, if the address was not known, that the letter be returned to the Center. When undelivered mail was returned, the process of tracing by telephone and field search began. During the one and one-half years of the OCD data collection, one-third of the mothers moved at least once (see later sections for description of moves during the 12 year period).

The response rate for completing the psychological evaluation of the child and the interview with the mother at the 12 year follow-up was as follows:

Percent of Examinations Completed by Number of Appointments Required

58.8% completed on the 1st appointment
23.3% completed on the 2nd appointment
9.4% completed on the 3rd appointment
4.0% completed on the 4th appointment
3.0% completed on the 5th appointment
1.5% completed on the 6th appointment

Saturday appointments were required for completion of 11.4% of the studies on children and mothers. This was necessary to accommodate working mothers and children who did not want to miss school. These rates of completed appointments are very similar to those experienced during the earlier years of the JHCDS. However, in this instance, there had been a four year lapse in data collection, whereas, in prior years at least some information was collected at least once each year.

We had hoped for an approximately 90% completion rate and we were gratified that we came very close to achieving this. The actual completion rates for various components are shown in Table 2.

Missing Data

Characteristics of Subjects (n=65) not included in the Analysis of SES factors

The reasons for the unavailability of SES data (full interview not completed) have been outlined (Table 2). Certain characteristics of this group were examined more closely to assess the integrity of the total analytic picture and to attempt to identify possible biases introduced by missing data.

(1) Race

This study sample consisted of 466 children of whom 378 (81%) were black and 88* (19%) were white. Data were not collected for 43 (11%) of the blacks and for 22 (25%) of the whites.

(2) Sex of Child

Of the 378 black subjects, 199 were boys and 179 were girls. Among the boys complete data were not obtained for 20 (10%) and among the black girls, they were not obtained for 23 (13%). Among whites, the rate of missing data is higher, they were not available for 9 boys (21%) and 12 girls (26%). The fact that complete data were

*Includes 1 of other race

TABLE 2

Rate of Successful Follow-Up at Age 12 Years
and Description of Items Completed

	Number	%
Total Children (including 6 sets of twins)	466	100
Mothers	460	
ITEMS COMPLETED		**Cumulative %**
Psychological battery with child and interview with mother	403	86.5
Psychological battery with child and abbreviated interview by telephone	6	
by mail	1	
Psychological battery - no interview	5	
Abbreviated psychological examination and interview	1	
	416*	89.3
No psychological examination - abbreviated interview		
by telephone	16	
by mail	3	
by home visit	1	
	436	93.6
No data collection possible because:	30	6.4
Mother working	5	
Parents refused	9	
Whereabouts unknown	8	
Moved out of town	6	
Family problem	2	

*412 psychological batteries and interviews were completed as of 5/26/77, the arbitrary date of data completion.

collected for only 75% of the whites, indicates the need for caution in the management and interpretation of data pertaining to whites in this subsample.

(3) Age of Mother

A concerted effort was made to obtain data from all subjects. However, time and resources were limited and because of our particular interest in adolescent pregnancies, an additional and successful effort was made to obtain data from all in this group. Table 3 provides the distribution of mothers by age and indicates the proportion in each age group for which data are missing.

The mothers in the sample had been enrolled at their first prenatal visit with index child regardless of the number of prior pregnancies. They, therefore, covered a wide span at the time they delivered the 'study' child.

TABLE 3

Distribution of Mothers by Age at Delivery and Proportion of Each Age Group for Whom Data are Completed

Age at Delivery			Data Not Obtained		Proportion of Group
Yrs.	N	%	Number	% of total 466	with completed data
≤ 17	77	16.5	0	0	100
18-20	87	18.7	14	3.0	83.9
21-25	140	30.0	22	4.7	84.3
26-30	85	18.2	13	2.8	84.7
31-35	47	10.1	9	1.9	81.9
36-40	24	5.2	6	1.3	75.0
≥ 40	6	1.3	1	0.2	81.0

(4) Maternal Education

The distribution of maternal education, in terms of years of schooling completed, was examined for the 466 mothers. Superficially there appears to be no difference in this variable between the 401 for whom all data at the 12 year level were completed and the 65 for whom incomplete or no data were obtained.

(5) Birthweight of Child

Similarly, the distribution of birthweight by race for the 401 with complete data at the 12 year level and the 65 with incomplete or absent data shows essentially no difference, slightly over 16% low birthweight for blacks and slightly over 13% for whites in both groups. It must be remembered that the births occurred in 1964, percentages of low birthweight have declined somewhat in ensuing years.

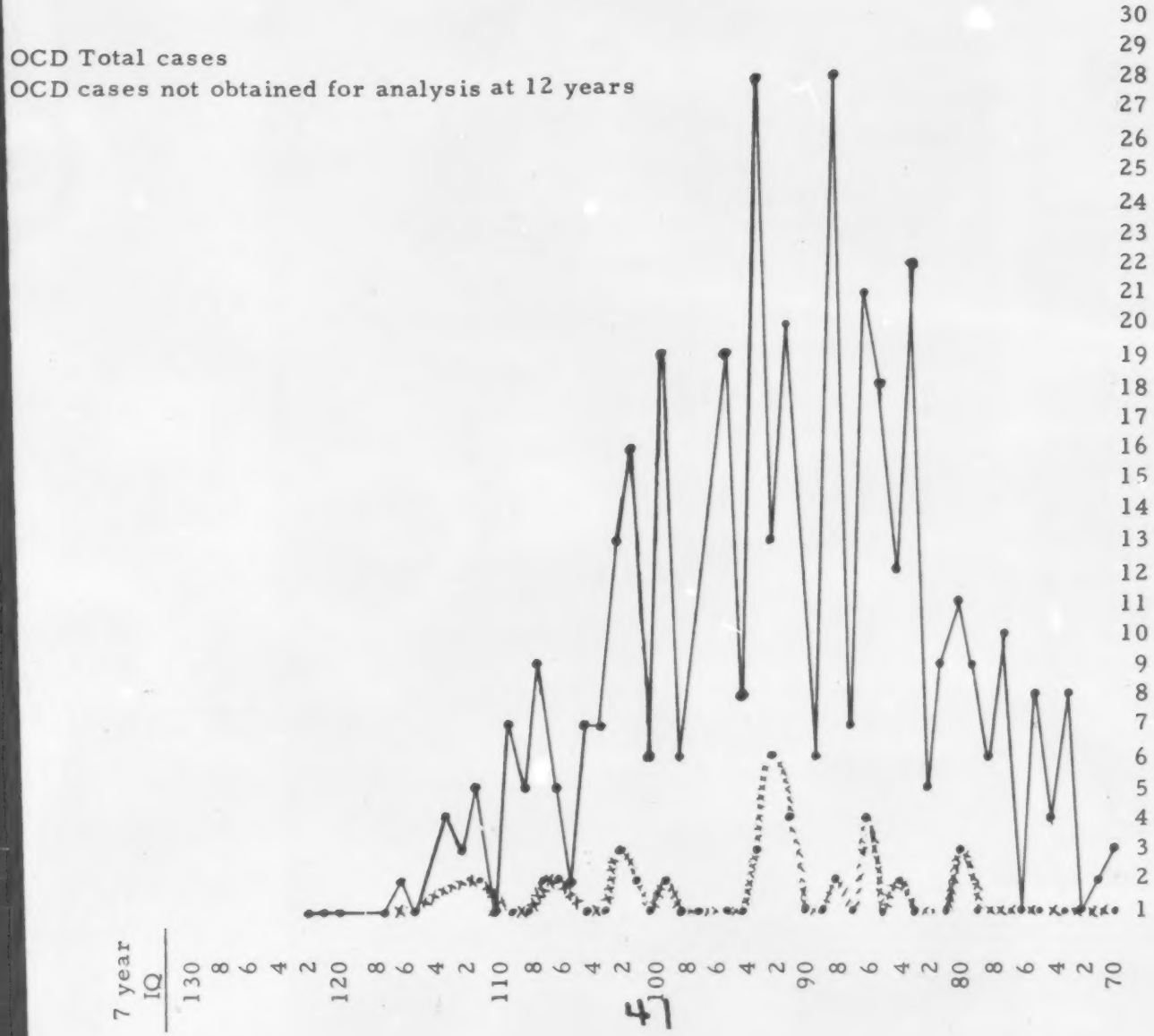
(6) Seven Year IQ (Full Scale WISC)

A comparison was made to determine possible differences between those (401) with complete data at age 12 years and those (65) with incomplete or no data. As may be seen in the graph in Figure 2, the distributions follow roughly similar patterns.

Summary: Missing Data

Examination of the missing data indicates that an acceptable level of complete data has been obtained for analysis. However, the pro-

FIGURE 2: 7 Year IQ - OCD Sample



portion missing for the white subjects is greater than for the blacks; and, when coupled with the smaller sample size indicates the need for caution in interpretation.

Description of New Data

As indicated in the introduction, new data were collected in two areas at the 12 year age level. Table 4 provides a summary of the various items on the interview with the mother.

Data from the mother, about herself, the family and the child, were collected at the Study Center, in an interview situation, with a precoded, structured, interview schedule (with space for narrative comments), by an experienced interviewer who is well known to the mother. The mothers trust the Study Staff and discuss confidential information without hesitation. A copy of the interview schedule manual and coding instructions are included in the appendix. The interview took 60-90 minutes.

Note: Because of the high frequency of functional illiteracy in this population, self administered questionnaires are unsatisfactory. An interview with a structured questionnaire or an individual test situation is required for collection of high quality data.

Data from the child were collected at the Study Center by a trained psychologist, in an individual test and interview situation, after a brief

TABLE 4

Data Collected from Mother at 12 Year Follow-Up

1. Family constellation - update of demographic data pertaining to income, occupation and education;

2. Family health;

3. Other information required for Social Well Being Index, i.e., stress and coping, social participation; perception of moral worth and general satisfaction with life; expectations for children;

4. Child care arrangements since 7 years;

5. Child health; history of illness and accidents;

6. Louisville Behavior Checklist* pertaining to index child.

*Lovick, C.M., Department of Psychiatry, University of Louisville, Louisville, Kentucky.

warm-up period to establish rapport. The children were accustomed to coming here and therefore reasonably comfortable. Again, pre-coded forms were used to facilitate data handling. The standardized tests employed are listed in Table 5. In addition, the child was weighed and measured. Evaluation of the children took 60-90 minutes each.

Data Processing

Because of the complexity of the data, particularly the interview, pretesting and the development of manuals was essential before final data collection began. After the interview or testing session, the records were reviewed for completeness and consistency and then turned in for coding and key punching. Punched data were fed into computer tape for storage and later analysis.

TABLE 5

The Twelve Year Psychological Test Battery

1. Wide Range Achievement Test
2. Gray Oral Reading Test
3. Bender Gestalt Test (scored by the Koppitz Developmental Bender Scoring System
4. Piers-Harris Children's Self-Concept Scale
5. Coopersmith Self-Esteem Inventory
6. Greenberger Psycho-Social Maturity Scale
7. Kinetic Family Drawing
8. Racial Attitude Survey
9. Goodenough Harris Draw-A-Man Test
10. Behavioral Profile and Test Observations
11. Psychological Test Summary
12. Physical Growth: height, weight and maximum S. O. B. head circumference

FINDINGS

Outline of Data to be Presented

In the preceding pages, attention has been directed toward describing the background, general objectives and methodology of the socialization study. We turn now to the presentation and discussion of some of the findings.

Limitations of both time and resources have, to date, precluded anything beyond simple, descriptive and exploratory analyses. Even though data are accessible, examination of possible relationships within and between the various data sets has not been feasible excepting in the small exploratory studies described later in the report.

The analyses reported here are presented as described below.

Section I includes a presentation of the data collected from psychological assessment of the children at age 12 years. The outcome measures of academic achievement, self concept and general psycho-social integrity and the results of other psychological measures used at this age are used to describe the levels of socialization attained.

Section II includes discussion of environmental factors which may have influenced development.

Considerable thought has been given to finding a clear and logical way in which to present findings and interpretation of results

as they pertain to various environmental factors which may have affected the development of individual children. But, in the present stage of the analyses, a coherent method of presentation remains elusive.

Because of gaps in analyses in some areas and overlap in others, problems have been inevitable. The following scheme has been adopted.

(1) The distributions of a number of general family characteristics are presented for the study population as a whole.

(2) The general characteristics of the geographic area in which the families live are discussed.

(3) The mobility of the study population follows. This is a description of physical, geographic mobility over the 12 year period followed by discussion of attendant social movements based on census tract data.

(4) The Social Well Being Index is presented as a procedure for synthesizing data for individual families and its use demonstrated by detailed analysis of the first 10 interviews collected.

(5) The final presentation is a detailed discussion of the long-term outcome of adolescent pregnancy for both mother and child as compared with more mature mothers and their children.

(6) The results of an analysis identifying characteristics of successful and failing children using the SWBI and various biological and psychological variables are presented.

Appendix A includes: (a) a copy of the interview schedule and study manuals; and (b) material from the Greenberger Scales of Psycho-Social Maturity.

Appendix B includes copies of three manuscripts:

(1) A Comparison of Oral Comprehension Skills Between 8 and 12 Years in a Group of Inner City Children

(2) A Prospective Study of the Bender-Gestalt Test Between 8 and 12 Years in an Inner-City Population.

(3) The Long-Range Outcome of Adolescent Pregnancy.

FINDINGS - Section I

PSYCHO-SOCIAL FUNCTIONING OF URBAN 12 YEAR OLDS

A. Performance of Study Population

Four hundred and sixteen of the 466 children in the study sample came to the Center for the 12 year psychological test battery. Of these, 3 were profoundly retarded and could not be tested with the instruments selected for this study; one normal child had only an abbreviated examination. Thus, 412 completed records were available for analysis.

The race and sex distribution of the 466 children is shown in Table 6. Missing data are discussed on page 19.

TABLE 6

Distribution by Race and Sex of 466 Study Children

Sex	Black		White		Other		Total	
	N	%	N	%	N	%	N	%
Boys	199	42.7	41	8.8	1	0.2	241	51.7
Girls	179	38.4	46	9.9	-	-	225	48.3
Total	378*	81.1	87	18.7	1	0.2	466	100.0

*Includes six sets of twins - all black, 1=F/F, 2=M/M, 3=F/M

Status of Children

The great majority of the children in the study sample were generally normal physically. However, some children with known and severe handicaps were included, providing insight as to how the mothers coped with the added child rearing burden. Included were the following:

E.D.: grossly retarded following measles encephalitis at age 2 years.

Y.B.: profoundly deaf 'rubella' child - growth retarded but of average IQ.

B.B.: profoundly deaf 'rubella' child, questionable IQ.

M.P.: severe visual handicap and growth retardation following congenital rubella.

C.B.: mental retardation, unspecified.

F.C.: Down's Syndrome - retarded.

C.J.: Down's Syndrome - retarded.

In spite of severe handicaps, only 3 of the children (E.D., C.B., and C.J.) were untestable with the selected instruments.

Outcome Variables

For the purposes of this investigation, effective socialization was defined by adequate performance in the following areas:

(1) School achievement, particularly in the areas of reading, spelling and arithmetic.

(2) Socio-emotional development as measured by the child's level of self-esteem, social behavior in the testing situation and the child's perception of him/herself as a member of his/her own racial group; and

(3) Overall integrity as judged by a summary rating based on the child's total performance and state of well being.

Related Variables

In addition, the Bender Gestalt test was administered as a measure of integrity of the central nervous system (as indicated by the level of perceptual motor function which this test measures) and the Draw-A-Person (DAP) provided some indication of the child's overall intelligence and how he views himself as a person.

Tests Administered at 12 Years

As these children were part of a longitudinal study, it was possible to assess growth in academic skills. For this reason, the Wide Range Achievement Test (WRAT) which had been used to measure achievement in reading, spelling and arithmetic at the 7 and 8 year levels and the Gray Oral Reading Test which had been

used at 8 years were readministered at 12 years.

Similarly, the Bender Gestalt and Draw-A-Person which had also been administered at 7 years were readministered at 12 years to measure both level of performance and change during the 5 year interval.

The Piers Harris Self-Concept Test, the Coopersmith Inventory of Self-Esteem, the Greenberger Scale of Psychosocial Maturity, the Racial Attitude Scale and the Kinetic Family Drawing Tests were used to obtain measures of the child's self-concept in relation to the home, school and peers.

The first analyses presented are descriptive, providing an overview of the functioning levels of the study sample as a whole. These descriptions are intended to serve as a point of reference for the comparative studies which follow.

(1) Academic Achievement

In addition to testing reading, the WRAT provided measures of achievement in written spelling and computation, while the Gray Oral Reading Test provided a measure of oral reading and comprehension. Scores at the 7, 8 and 12 year levels for the WRAT are presented for the study group in Table 7.

TABLE 7

Means and SD's of Performance on the WRAT of Study Children at Ages 7, 8 and 12 Years

Year	N	Spelling		Reading (word recognition)		Arithmetic	
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
7 years	466	94.27	10.69	95.07	11.58	96.52	11.60
8 years	466	89.72	11.36	92.21	13.55	90.24	8.39
12 years	412*	85.42	13.89	87.93	15.83	80.36	9.83

*see page 19 for explanation of missing data

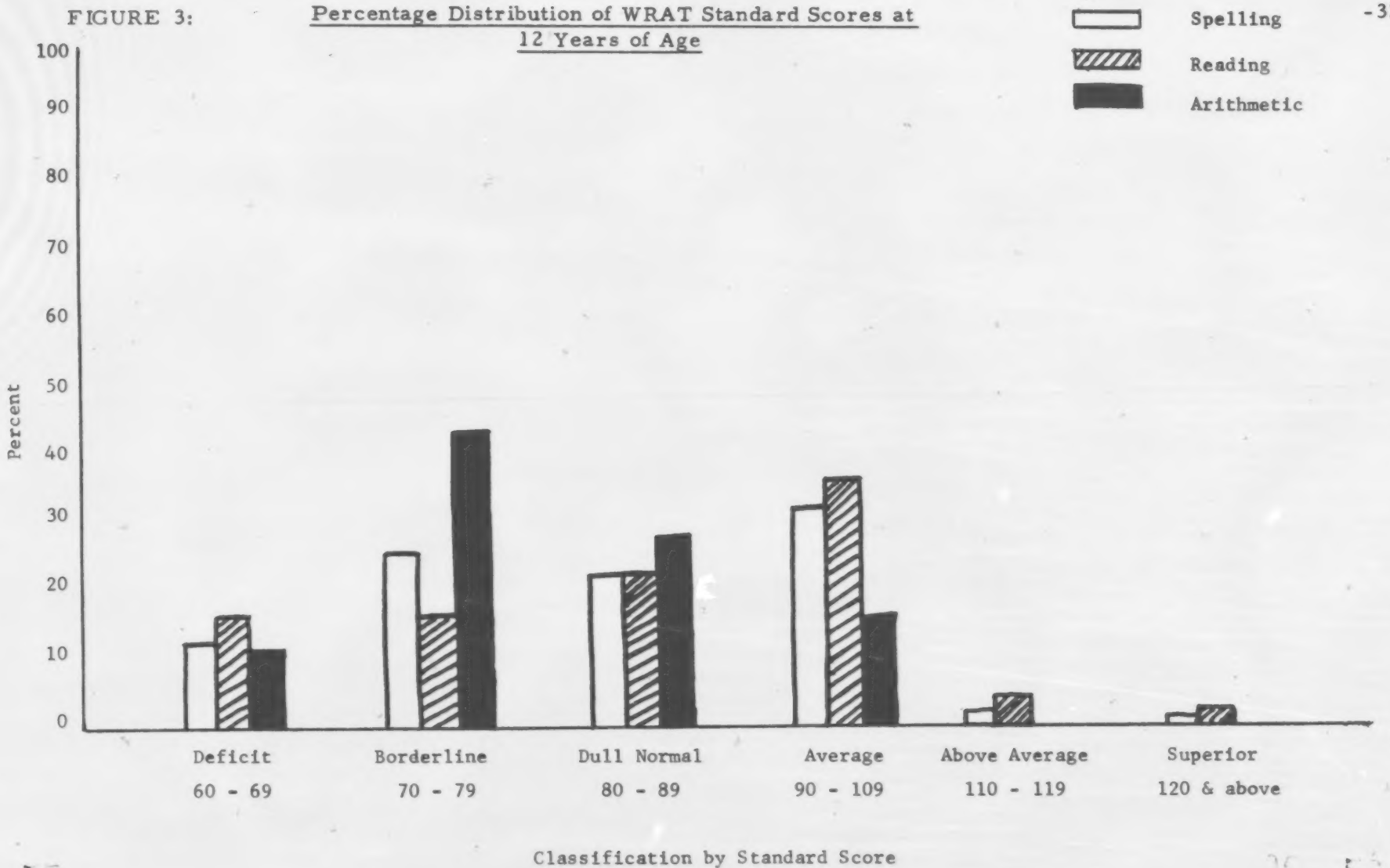
At the 7 year level, the children, on the average, obtained achievement ratings well within the average range in all three scholastic areas. Further, their performance was consistent with their average level of intellectual functioning as assessed by the Weschler Intelligence Scale for Children (WISC) administered at 7 years. An average full scale mean IQ of 90.97 (SD: 11.12) was attained by these children, suggesting that, as a group, they had at least low average potential which was compatible with their academic performance.

By age 12 years, a lower relative level of academic performance was found. In spelling, this decline in rate of growth was almost 9 points, and was significant ($p < .01$). In reading, the decline was 7

points and in arithmetic it was more than 16 points ($p < .001$). The level of academic achievement in reading as measured by the Gray Oral Test was similarly low. The discrepancy between the achievement scores at the 12 year level and the WISC IQ obtained at age 7 years was also significant ($p < .001$). This relative regression in academic achievement is not a new phenomenon in inner city school children who seem to fall progressively further behind national norms with increasing age. Their formal skills in the areas measured develop at a slower pace. This phenomenon raises serious questions as to underlying causes. Do the etiological factors lie within the school, relating to the adequacy of the instructional processes and/or the learning environment, or do they lie outside the school, in environmental influences which foster or inhibit the educational process? What happens to individual children as they move through the school system? It must be noted that, although the overall group level of achievement was low, 37% of the children performed at an average, or higher, level. What was different about these children, their schools, their self-concepts, their level of motivation, family backgrounds, etc.? An attempt to examine possible differences is reported later in this report (see Success vs. Failure, page 158).

The percentage distribution of WRAT standard scores at 12 years of age is presented on Figure 3.

FIGURE 3: Percentage Distribution of WRAT Standard Scores at 12 Years of Age

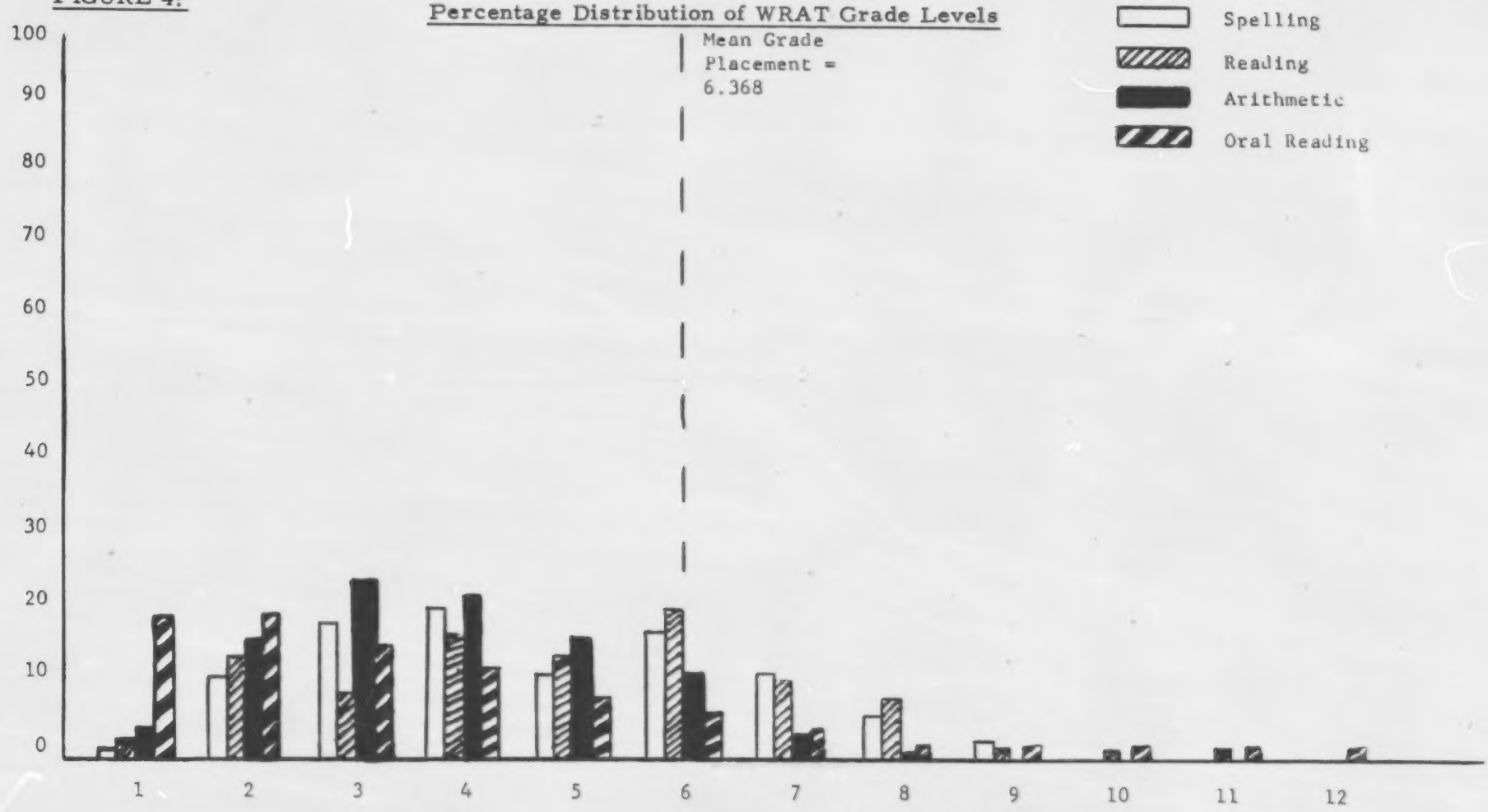


The actual mean grade placement of the 412 children was 6.37. In Figure 4, the mean grade level achieved on the various subtests is displayed. When compared with their actual grade placement, it is clear that nearly half of the children were achieving, in the various areas, at a level more than one grade below that which would be normally expected on the basis of age. The best average performance was in word recognition (WRAT Reading) with a mean grade level of 5.0, more than one grade below the actual placement of 6.37. Performance on oral reading tasks shows an even wider disparity between actual grade placement and reading. A grade level equivalent of 3.8 was attained on the Gray Oral Reading Test, a significant difference from the WRAT performance ($p < .001$). The observation suggests that the children have acquired basic sight vocabularies and word attack skills in isolation, but are experiencing difficulties when reading in context, perhaps to the detriment of comprehension of orally presented materials. Support for this assumption and the above findings is provided by a study of reading comprehension by Wessel and Daniels (1978) utilizing a selected subsample of this study population (see Appendix B).

Spelling skills were found to parallel word recognition abilities. Both rely heavily on decoding skills. A mean difference of three months between the average spelling and reading achievement in

FIGURE 4:

Percentage Distribution of WRAT Grade Levels



SUBTEST	%	%	%	%	%	%	%	%	%	%	%	%
Spelling	1.7	11.1	18.4	20.1	11.3	17.0	10.8	5.9	2.9	0.5	0.2	0.0
Reading	3.4	14.3	8.4	16.7	14.3	19.9	10.1	7.4	2.2	1.2	1.5	0.2
Arithmetic	3.9	15.9	24.8	22.8	16.7	11.3	3.2	1.0	0.2	0.2	0.0	0.0
Oral Rdg	19.7	20.5	15.2	13.2	9.6	6.3	5.1	2.0	2.5	2.0	2.0	1.8

favor of reading, was significant ($p < .001$). The relationship between spelling and word recognition is shown in Table 8.

TABLE 8

Relationship Between WRAT Spelling and Word Recognition Grade Levels Obtained by 12 Year Old Study Children

Word Recognition: Grade Level Achieved	SPELLING: Above Average Percentage	SPELLING: Average Percentage	SPELLING: Below Average Percentage
Above average	3.5	1.2	0.0
Average	4.7	24.9	4.0
Below average	0.2	10.4	51.0

Average arithmetic scores were depressed even more severely than spelling and reading scores. The average score obtained at 12 years was 80.36, 16 points lower than the 96.52 obtained at age 7 years. The mean grade level of 3.9 for arithmetic, at 12 years, was significantly lower ($p < .001$) for this academic skill than for WRAT reading and spelling. However, a consistent level of performance was noted between arithmetic and oral reading where the average grade level equivalent was 3.8 suggesting that similar levels of reasoning skills, problem solving ability and the like are required by both tests.

When achievement was examined at the 12 year level by sex of child, as expected, a small difference ($p < .05$) was noted with respect to spelling and reading. In both instances the girls performed at a higher level than the boys. For example, on the spelling test, 68% of the boys gave a below average performance as compared with 55% of the girls. Further, 7% of the girls received above average ratings as compared with only 2% of the boys. Nevertheless, 32% of the boys and 45% of the girls performed at an average or above level. How did these youngsters differ from those whose performance was substandard?

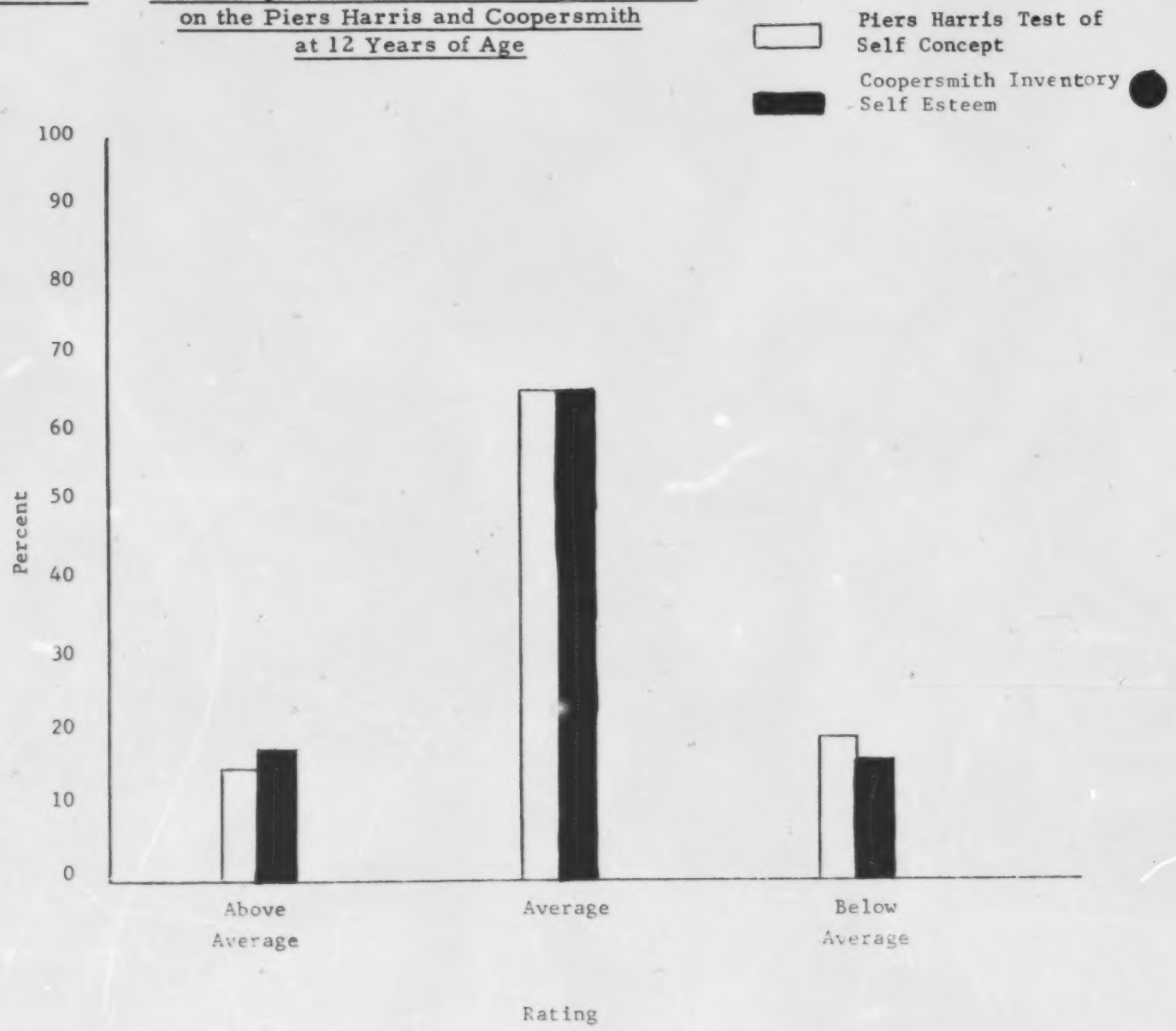
With respect to arithmetic skills, the performances of 89% of the boys and 78% of the girls were rated below average. This dismal performance, if it reflects the general level of arithmetic skills in inner city schools, must surely relate to deficiencies in instructional programs, at least to some extent. Deficiency in the educational process was further suggested by the following observation. The examiner found that when, after completion of the test battery, he administered a set of unrelated arithmetic problems and showed the child a simple method for solving one or two problems, the child was able to learn the technique quickly and apply it successfully to other similar problems.

(2) Self Concept

One of the major components of the socialization process is the establishment of self image. Positive feelings about self are a manifestation of social health and maturity. For this reason, measures of self concept were regarded as critical outcome measures in this study. Four separate tests were used in the evaluation of the child's perception of his relationships with various aspects of his environment and how he felt about himself. In addition, the interview with the mother tapped her perception of some of the same areas and thus, to the extent of the considerable agreement between the mother and child, provided a kind of validation of the child's view.

Both the Piers Harris Self Concept Test and the Coopersmith Inventory of Self Esteem were used with each child. Each test makes use of a forced choice format on the child's part to assess feelings related to self identity, home, school, and social situations. The overall ratings obtained by the children are shown in Figure 5. In general, the majority (66%) of the children received a rating of average on both tests. As a group, at least 80% of the children 'felt good' about themselves, their poor academic performance

FIGURE 5: Percentage Distribution of Ratings Obtained on the Piers Harris and Coopersmith at 12 Years of Age



notwithstanding. How many children received the same rating on each test is not known at this level of the analysis. A trend was observed for the Coopersmith to rate a slightly larger percentage of children as being 'above average,' while the Piers Harris rated a slightly larger proportion as 'below average.'

When the raw scores of the subtests of the Coopersmith were examined by sex of child, girls were noted to perceive themselves in a more positive light than the boys. However, the difference ($p < .07$) did not reach a significant level.

As the sample was composed of both black and white children, and as racial preferences may be important in relation to self, a supplemental instrument adapted from Savage, the Racial Attitude Survey (RAS), was administered. Previous investigations have suggested that establishment of a positive racial preference reflects an adequate self image. Ten items from the Savage Scale were administered as part of the self concept test battery. The ten questions shown in Table 9, reflecting preference or rejection of skin color, were selected and used with black children. When testing white subjects, the skin color was reversed and the responses scored accordingly.

TABLE 9

Select Questions from the Racial Attitude Survey (RAS)*

	YES	NO
1. Do you like to play with black kids better than white kids?	001	002
2. Do you like black kids better than white kids?	001	002
3. Do you think that black kids are nicer than white kids?	001	002
4. Do you think that white kids look better than black kids?	002	001
5. Do you like white kids' skin color better than black kids' skin color?	002	001
6. Are you white?	002	001
7. Are you Caucasian?	002	001
8. Are you black?	001	002
9. Are you Negro?	001	002
10. Are you colored?	001	002

*From Savage - Personal communication to D. W. Welcher

A rating of 'suspect' with respect to racial attitudes was assigned if a child chose a race other than his/her own in response to question 4, and an abnormal rating was given on the basis of inappropriate responses to both questions 4 and 5.

There were 340 (82.5%) black children and 72 (17.5%) white children among the total of 412 children tested. As a group, 36% of the children preferred the opposite skin color, or rejected their own. Of these, 91% were black, the remainder were white. Such a high rate of rejection had not been expected as the questions had been asked in a non-directive, supportive way, giving the child every opportunity to feel positive about himself.

The ratings attained by the children on the Racial Attitude Survey were compared with those on the self concept tests. The comparison is shown in Table 10. Of 53 children receiving an abnormal rating on the RAS, 40 (75.5%) were also rated as abnormal on the Piers Harris, while 39.1% (n=102) of those with appropriate RAS responses received an abnormal Piers Harris rating. Somewhat similar relationships between the Coopersmith and RAS were demonstrated.

TABLE 10

Comparison of Performance Between the Racial Attitude Survey and the Piers Harris Self Concept Test Administered at 12 Years of Age
(n=407*)

		RACIAL ATTITUDE SURVEY					
		Normal		Suspect		Abnormal	
		N	%	N	%	N	%
PIERS HARRIS	Normal	56	21.5	20	21.5	2	3.8
	Suspect	103	39.5	36	38.7	11	20.8
	Abnormal	102	39.1	37	39.8	40	75.5

*5 missing cases

(3) Behavior Ratings - Overall Impression of Psycho-Social Function

Behavior was rated as normal, suspect or abnormal using a subjective scale based on observations made during the psycho-social testing session. Thus, the observations pertain to a single, one and one-half to two hour time period, in a situation which was reasonably standard for each child. It was a situation which each one had experienced to some degree on three prior occasions, at 4, 7 and 8 years of age. The observations included assessment of overall level of rapport, activity level, attention, distractibility, degree of interest and cooperation, effort, speech and other factors. Of the 412 children, 330 (80.1%) were judged to behave normally and appropriately. Of those with inappropriate behavior 73 or 17.7% were rated as suspect and 9 (2.2%) as abnormal.

When the various components of the scale were examined, 291 (71.5%) of the children initially demonstrated some resistance during the early phases of the testing. Manifestations of the resistance were negativism and hostility, typical of the pre-adolescent child. These were usually of relatively slight degree and were overcome by the examiner as rapport was established with the child. Ratings pertaining to the child's degree of interest, effort and persistence did not appear to be influenced by the initial

negativism, nor did the overall level of motivation. In fact, the observation is reported simply to emphasize the importance of an initial warm-up period during which rapport is established prior to testing in important and/or sensitive areas.

When the academic and psychological test results were combined to form an overall impression of adequacy of psychosocial functioning, 195 (47.6%) were rated as normal, 180 (43.9%) were considered to be suspect and 33 (8.0%) were viewed as abnormal. A rating of one child was not available because of an incomplete test battery. Also, one must remember that 3 additional children were so severely handicapped that they could not be scored. The majority of suspect ratings were based on inadequate academic performance, specifically low scores on the WRAT and the Gray Oral Reading Test.

Results from Other Tests

While the other psychological tests administered at the 12 year level were not strictly outcome measures for use in this study, they provided information which described the children with respect to characteristics which related to the outcome measures and were thus considered in determining overall levels of functioning. These measures are described below.

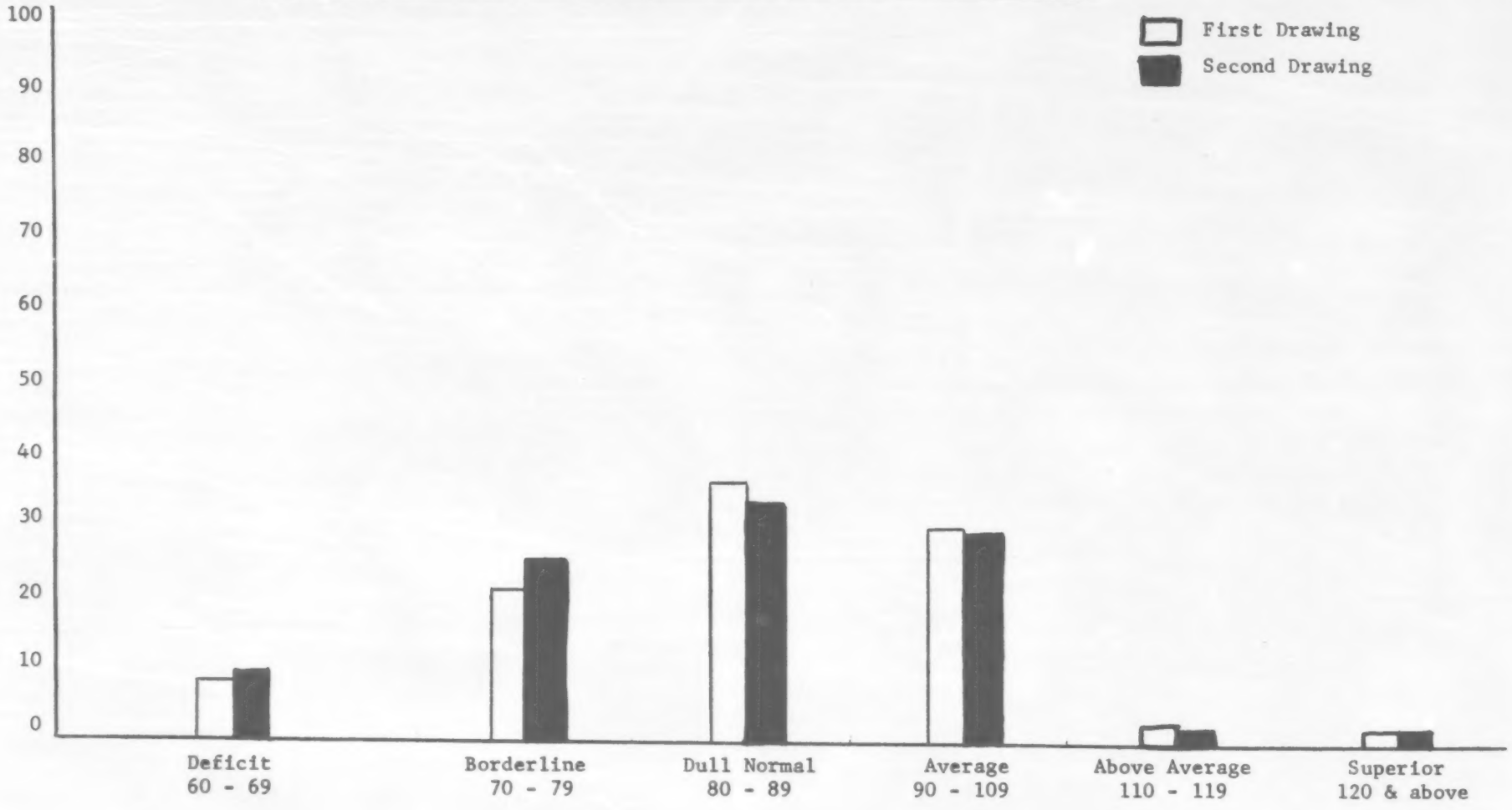
Intellectual Development

Because of the limited testing time, the DAP was used as one indicator of intellectual functioning. Mean scores of 86.05 (SD: 13.68) and 84.55 (SD: 13.63) were attained on the first and second drawings, respectively. The percentage distribution of DAP standard scores is displayed in Figure 6. When compared with the children's earlier performance on the DAP at 7 years, which yielded a mean score of 94.38 (SD: 12.85), the 12 year mean of 86.05, for the first drawing was significantly lower ($p < .01$). The discrepancy may be due to inattention to the detail required for average or higher ratings at older ages. However, the generally lower level of performance seen at age 12 parallels performance on academic achievement tests.

When the Stanford Binet Intelligence Scale was administered to these children at age 4 they attained a mean IQ of 89.8 (SD: 13.78). At 7 years, the mean WISC Full Scale IQ was 90.97, showing a high correlation with the Binet at age 4 years. The DAP presents a different kind of task and no doubt measures different attributes. However, at age 7 years a high degree of correlation was observed between the results of the DAP and the WISC, and academic achievement was consistent. At age 12 there seems to be a similar consistency between test results and the DAP is compatible with the low levels of academic skills observed.

FIGURE 6:

Percentage Distribution of DAP Standard Scores at 12 Years of Age



Perceptual Motor Function

The Bender Gestalt Test (BGT) was used to assess the level of visual motor integration. The BGT is a paper and pencil, design copying test in which the child is required to organize patterns presented to him. This test provides a measure of the child's developmental level with respect to visual motor perception and function and is widely used to differentiate between normal and neurologically impaired children. When used in a clinical setting as part of a broader test battery and scored in a qualitative as well as in a quantitative fashion, it can be helpful. However, when a global error score is used in relative isolation from other clinical tests, particularly in research or school settings, the results can be quite misleading as demonstrated by a longitudinal study carried out in this population of children, by Welcher and Wetzel (1972) and Welcher, et al (1974).

The test was administered to the 12 year olds, in standard fashion and scored utilizing the Koppitz Developmental System (1974). Clinical classifications of normal, suspect and abnormal visual motor performance were established based on the results of Koppitz (1974) study of 'normal' 5 to 11 year old children. Our children were

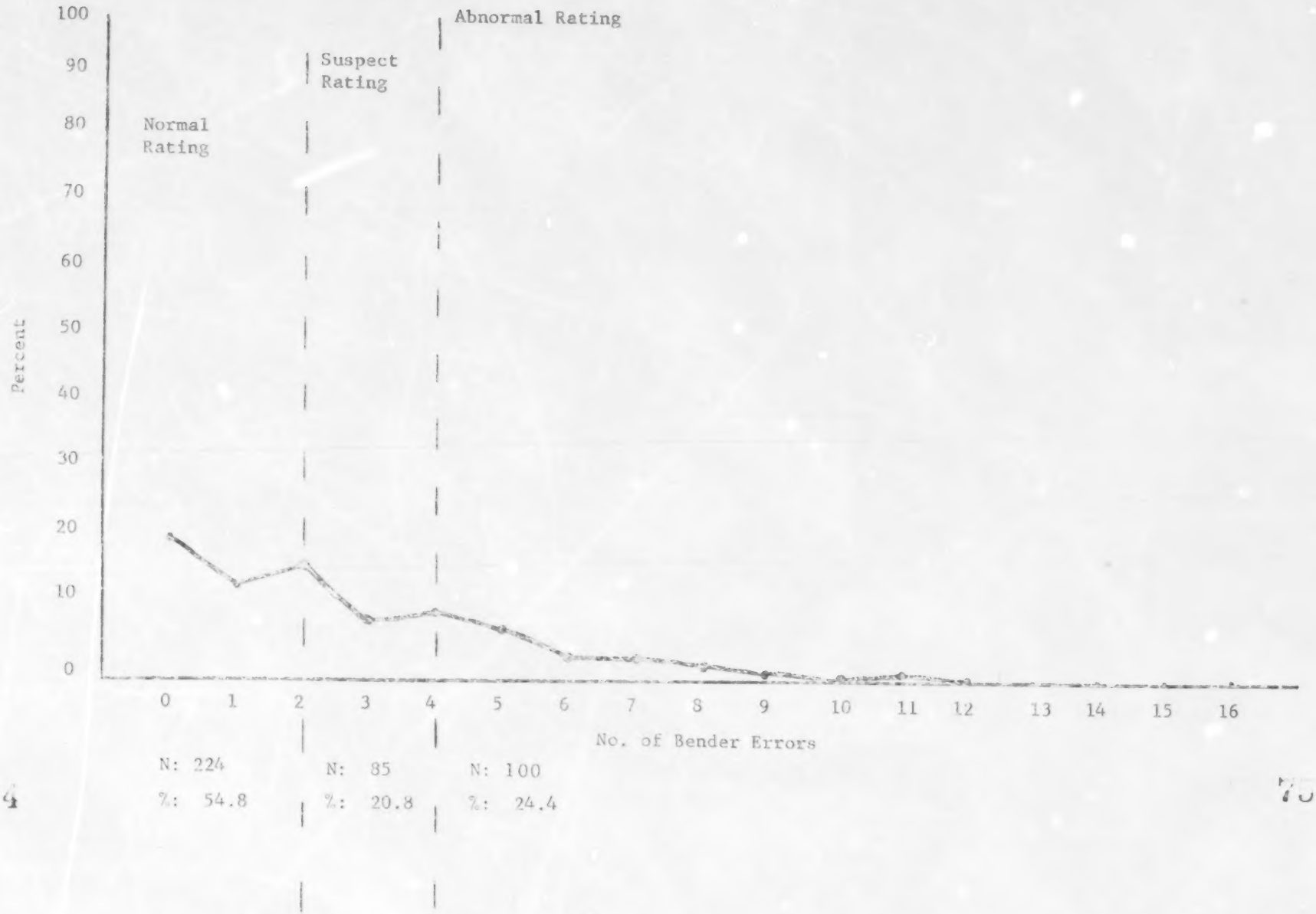
between 11 and 12 years. Thus, the application of her criteria for 11 year olds would seem to be conservative. A child was considered to have normal visual-motor function if his/her error score was 2 or less; he was suspect if the error score was 3 or 4 and he was abnormal if the score was 5 or more. Figure 7 displays the percentage distribution of error scores for children in this study.

According to the classification scheme, 55% of the children were considered normal; 45% of the children, therefore, received other than normal ratings (20.8% suspect and 24.2% abnormal).

It must be pointed out that the Koppitz 1974 normative sample was made up predominantly of white children from small towns and included only 13% black and minority group children.

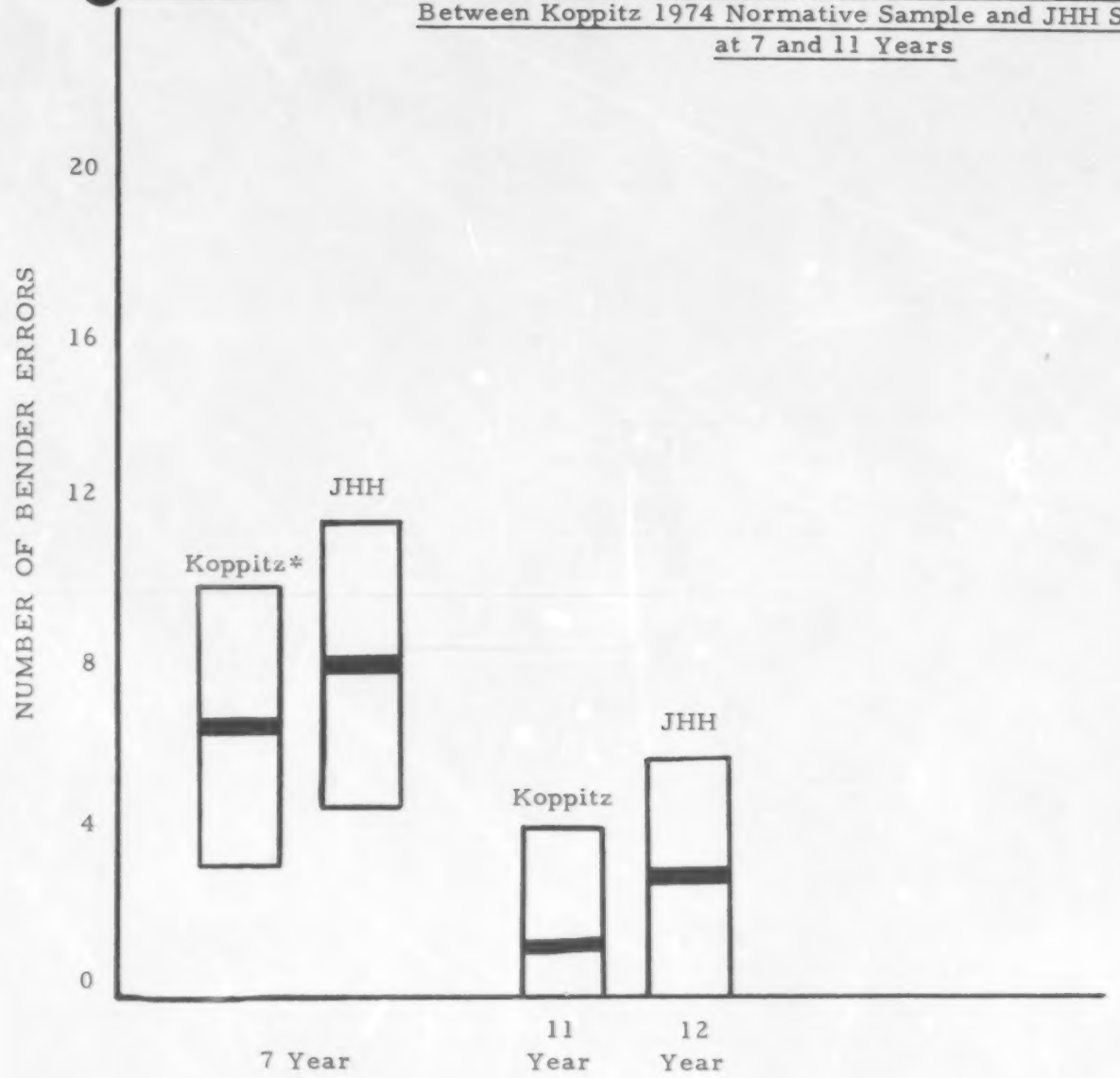
Comparison of the level of visual motor functioning of our study children at the 12 year level with the 7 year level shows almost identical results, 44.4% of children were rated non-normal at 7 years. It is true that they made fewer errors at 12 than at 7 years, but their visual-motor skills had not grown at a rate which had permitted them to 'catch up' with those in the normative sample. The delay in development observed at 7 years has not been overcome. Figure 8 shows a comparison between mean BGT scores and SD's when the study children were 7 and 12 years of age compared with

FIGURE 7: Percentage Distribution of Bender Errors at Age 12 Years



Missing Cases: 3 unscorable, abnormal children

FIGURE 8: Comparison of Mean Bender Errors and Standard Deviations Between Koppitz 1974 Normative Sample and JHH Sample at 7 and 11 Years



*1974 Normative Sample

findings from the 1974 Koppitz' normative sample. At this point, our analysis does not tell us whether the children who obtain low scores at 7 and 12 are the same children or how BGT performance relates to academic achievement, nor does it tell us the relationships with self concept. As indicated, comparisons have been made between BGT performance at three points in time and with the results of the neurological examination. The findings are presented in the paper by Wessel and Welcher (1978) included in Appendix B.

Psycho-Social Maturity as Measured by the Greenberger Scale of Psycho-Social Maturity

One aspect of the process of socialization is the development of a satisfactory level of psycho-social maturity. Using an integrative model of development, based on this dimension, as formulated by Greenberger and Sorensen (1973), each child was administered the Greenberger Psycho-Social Maturity Scale at age 12 years.

A detailed model and sample items from the Psycho-Social Maturity Inventory are found in Appendix A. Subscale and global scores were derived from the child's responses using the format devised by Greenberger (1974). However, the children experienced problems with reading the test, thus, in an effort to avoid discrepancies based on the child's ability to read and understand the scale items,

the inventory was administered orally by the examiner while the child followed along visually on his own copy.

Form D (grades 5 and 6) of the Psycho-Social Maturity Inventory was utilized with these children. Using norms appropriate for this study sample, each child was rated on the global scale of Individual and Social Adequacy. The findings are shown in Table 11.

TABLE 11

Distribution of Ratings of Individual and Social Adequacy at 12 Years - Greenberger Scale
(n=395)*

Scales	Above Average		Average		Below Average	
	N	%	N	%	N	%
Individual Adequacy	113	28.6	269	68.1	13	3.3
Social Adequacy	111	28.1	253	64.1	31	7.8

*17 children were unable to complete the inventory

The data indicate that over 92% of the 395 children tested received an average or above rating using this technique. Thus, the results did not discriminate. Comparison with findings from other tests administered suggests that the Greenberger ratings are of minimal value as a measure of the child's psycho-social

maturity; the inflated scores seemed to be related to the children's difficulty in understanding the individual items. Because of lack of understanding, most children appeared to give the socially appropriate response without adequately comprehending the content. When the questions were reformulated in language more appropriate to the skills of these children, the grade levels obtained ranged from 4th to 13th. Data from this test will not be used in this study because of the problems of reliability.

Kinetic Family Drawings

This technique was administered to assess the child's perception of his home environment and his place in it. The interpretation of this tool lacks objective criteria, it has not yet been rated and will be dealt with as a separate research project. The results did, however, provide: (a) useful clinical information which usually supported the interview data from the mother; and (2) a view of the child's perception of himself which supported information obtained on the Piers Harris and Coopersmith tests measuring self concept and self esteem. Crude classifications were made and the record was scored independently. This test looks promising and a more objective scoring method seems worth developing.

B. Performance of Children of Adolescent Mothers Compared with Those of Older Mothers

Subjects

From a total sample of 466 children selected for the socialization investigation, 77 children born to adolescents were chosen for special study. The study group was about equally distributed by sex with a total of 38 boys (49.4%) and 39 girls (50.6%); 81.8% of the children were black which reflects the inner-city clinic population from which this sample was drawn. The mean chronological age was 12 years, 1 month with the youngest child being 11.4 years, while the oldest was exactly 13 years at the time of the administration of the test battery.

Of the remaining 389 children, i.e., those born to mothers 18 years of age and older, only 335 were evaluated. Fifty-four were not included for various reasons which have been discussed elsewhere. When the 335 children were compared to the children of adolescent mothers, a slightly higher percentage of boys (53.4%) was found in the sample. As expected, the majority of these children (82.7%) also were black. As a group, they were slightly older, with a mean chronological age of 12 years, 4 months. Ninety-nine percent of the comparison group were at least 12 years of age while among the children of adolescents only 67% were 12 years old. The abnormal children mentioned earlier were also those of older mothers.

Procedure

The testing schedule, interviews and early evaluations were those already described (page 16).

Academic Achievement

In this area, the actual grade placement of the children revealed differences favoring children born to more mature women as shown in Figure 9.

More children of adolescent mothers had repeated one or more grades academically (21.1%) as compared with proportionately less than half as many (8.2%) in the comparison group. However, the inverse relationship between the 6th and 7th grade levels can be explained in two ways. First, that a larger percentage of children of adolescents repeated a grade and secondly, the adolescent pregnancy group consisted of slightly younger children.

Scholastic achievement levels attained by both groups were quite similar as demonstrated in Table 12. When the raw scores for academic achievement were adjusted for age, it was found that the majority of the mean standard scores fell within the dull normal range.

No significant differences were noted between the children of adolescent mothers and those of older women. Because of this, it would seem that the age of the mother by itself does not discriminate

FIGURE 9: Comparison of Grade Placement of Children in the Comparison and Study Groups

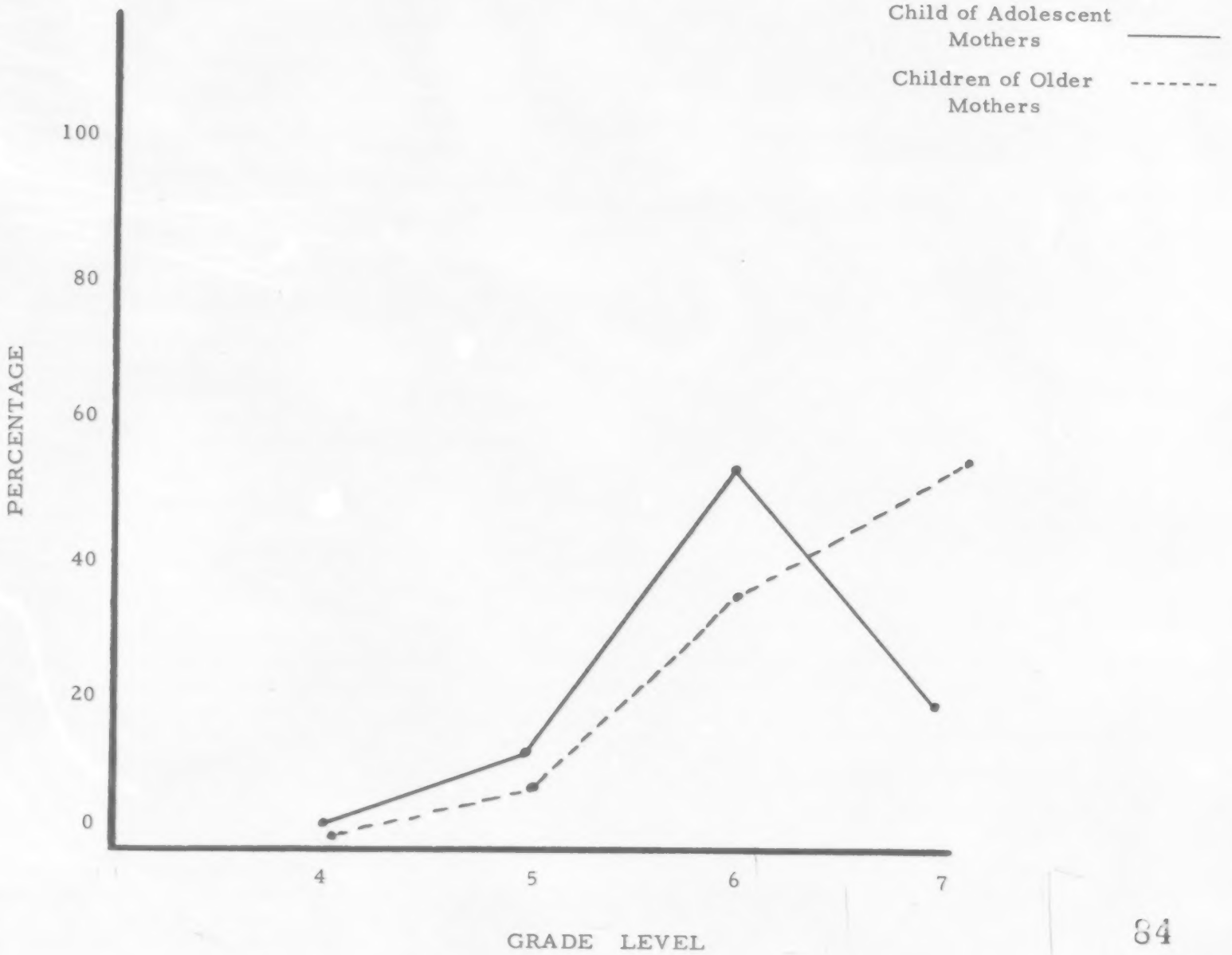


TABLE 12

Comparison by Standard Score Classification Between Children of Young Mothers (17) and Mature Mothers on the WRAT at 12 Years

Standard Score Classification	WIDE RANGE ACHIEVEMENT TEST									
	SPELLING				READING (word recognition)				ARITHMETIC	
	Young Mothers		Mature Mothers		Young Mothers		Mature Mothers		Young Mothers	Mature Mothers
	N	%	N	%	N	%	N	%	N %	N %
Superior (120)	3	4.0	1	0.3	2	2.6	11	3.4	0 0	0 0
Above Average (110-119)	1	1.3	14	4.3	7	9.2	14	4.3	0 0	1 0.3
Average (90-109)	24	31.6	111	33.8	26	34.2	121	37.1	18 23.7	45 13.9
Dull Normal (80-89)	19	25.0	73	22.3	18	23.7	75	23.0	31 40.8	120 36.9
Borderline (70-79)	20	26.3	85	25.9	13	17.1	50	15.3	23 30.3	113 34.8
Deficit (69)	9	11.8	44	13.4	10	13.2	55	16.9	4 5.3	46 14.1
NS	76*		328**		76*		326***		76*	325****
MEAN	86.35		85.21		89.03		87.67		82.66	79.83
SD	14.94		13.65		16.53		15.68		09.93	09.75

*1 missing case; ** 7 missing cases; *** 9 missing cases; **** 10 missing cases

with respect to academic outcomes. Similar findings were seen in the results of the oral reading test. On this test, the children of the younger mothers received a 3.3 mean rating ($T=1.7$; $p \geq .05$). Although both groups are significantly below actual grade placement in oral reading, minimal intergroup variation was encountered between the children of adolescents and those of older women.

Self Concept

With respect to this outcome measure, children in both groups demonstrated good levels of self esteem, as shown in Table 13.

TABLE 13

Distribution of Self Esteem Ratings Obtained at 12 Years of Children of Adolescent Mothers Compared with those of Older Women

Rating	COOPERSMITH				PIERS HARRIS			
	Study Group		Comparison Group		Study Group		Comparison Group	
	N	%	N	%	N	%	N	%
Above Average	14	18.2	58	17.5	13	16.9	63	19.0
Average	52	67.5	213	64.4	48	62.3	207	62.3
Below Average	11	14.3	60	18.1	16	20.8	62	18.7
Total	77	100.0	331*	100.0	77	100.0	332**	100.0

* 4 incomplete tests
** 3 incomplete tests

On both of the self concept inventories, average or above average ratings were obtained by the majority of the children in both groups. The positive feelings and self perceptions imply the establishment of a satisfactory level of self identity, which is important at this pre-adolescent stage of development.

Minimal differences were noted between the groups with respect to the sub-areas of the Coopersmith Inventories. As expected, however, the lowest score was found on the school related sub-scale which has a direct bearing on the children's level of academic performance and perception of the teacher's role in learning.

In reference to the children's attitude toward family as assessed by the Kinetic Family Drawing, the results indicate that more than 60% of the children (children of adolescents 63.6%; children of older women 64.8%) perceived the family in a positive, cohesive way. Similar findings were demonstrated in the children's response to statements involving the home on the Coopersmith.

In general, the level of self concept, psychosocial maturity and racial preference were well within the average limits, with minor exceptions, and the level was not generally different for the two groups of children. The importance of these data lie in the fact that most of the children within this study seem satisfied with their environmental circumstances and displayed a degree of comfort. However, it would be of great interest to look more closely at the data for those children (35%)

who seemed negative. The degree of negativity and relationships with other variables demand investigation.

Behavioral Ratings and Overall Impressions

From the results of a behavioral checklist which rated the child's behavior during the test situation, it was found that most children received a normal rating in this area as shown in Table 14.

TABLE 14

Comparison of Behavior Ratings

Behavioral Rating	Children of Adolescents N	%	Children of Older Women N	%
Normal	65	85.5	265	80.1
Suspect	11	14.5	62	18.7
Abnormal			4	1.2
Total	76*		331**	

*1 missing
**4 missing

The slight discrepancy between the children of young and older mothers may be related to the number of children in each subgroup rather than to a higher degree of deviancy in the comparison children. As indicated, a number of defective children were included, and they all happened to be children of older mothers, which resulted in slight distortion of the results.

An overall rating based upon the child's performance on each test as well as his behavioral manifestations during the testing was derived for the purpose of providing a more complete picture of the child's total performance. The ratings by subgroups are shown in Table 15.

TABLE 15

Overall Rating of Children Born to Adolescent Mothers and those Born to Older Mothers

Overall Rating	Children of Adolescents N	%	Children of Older Mothers N	%
Normal	42	54.5	153	46.2
Suspect	30	39.0	150	45.3
Abnormal	5	6.5	28	8.5
Total	77	100.0	331*	100.0

*4 missing

The data reveal that 45.5% of the children born to adolescent mothers received an other than normal rating, while 53.8% of the comparison children received similar ratings. For the most part, these high percentages of rating which are not normal may be related to the depressed academic achievement which is generally below national norms. However, the children rated abnormal probably

reflect the truly deviant group in this study as most have received marginal ratings on most of the outcome measures. Again, the large group of children of older mothers included a number of frankly abnormal children, weighting the data in the direction of abnormality.

Perceptual Motor Functioning

The results of the Bender Gestalt Test (BGT) are shown in Table 16. As shown, the error rate, which is inversely related to the development of perceptual motor functions, favors slightly the children of younger mothers although the variance is not significantly different ($T=1.39$; $p > .05$). The clinical rating on this test indicates that the comparison children have apparently slightly less adequate function, especially as approximately 10% of the children of the older mothers received an abnormal classification. However, clinical judgment of emotional and neurological influence showed no differences between the two groups.

TABLE 16

Comparison of BGT Error Scores and Ratings Between 12 Year Children Born to Adolescent Mothers and those Born to Older Mothers

BGT Classification	Children of Adolescents N	%	Children of Older Mothers N	%
Normal	46	59.7	178	53.6
Suspect	17	22.1	68	20.5
Abnormal	14	18.2	86	25.9
Total	77	100.0	332*	100.0
$\bar{x}$	2.52		3.07	
SD	2.54		2.92	

*3 tests not scorable

Draw-A-Person Test

On this test, the children of adolescents obtained a mean standard score of 86.36 (SD: 17.46) while the comparison children received a mean of 85.98 (SD: 14.16). As these differences were not significant between the two groups, it would seem that their ability to draw a well constructed, integrated human figure was equally distributed in both subgroups. However, the mode for the children of adolescents was a standard score of 74 as opposed to 83 for the comparison group, suggestive of a somewhat different interpretation. From the data obtained on this test, the scores for the comparison children were distributed along a normal curve, while the performance of the children of young mothers was truncated in a positive direction. This resulted in divergent ranges of 88 and 57 respectively. Thus, although the group standard score means were quite similar, internal subgroup variations and patterns of performance were quite diverse. This type of distribution was also found on the second drawing by the children.

In general, these findings are compatible with the levels of scholastic performance attained by both groups and represent a high degree of consistency.

IN SUMMARY

From the results of the investigation, it would appear that the age of the mother as a single criterion variable does not signi-

ficantly affect the academic and self concept outcomes of the child at 12 years of age. Additional analysis is required using multiple criteria to assess the developmental differences, if any. There may be variables, such as those which describe social class, which are associated with both low maternal age and child development, which override the effect of age per se. Another important factor, which was initially overlooked, is that the data were not controlled on parity. Most of the adolescent mothers were primiparous, with only 12 of the 77 being multiparous. However, 28.8% of the older mothers had had one or more prior pregnancies when 17 years of age or below, and had, therefore, been adolescent mothers. To establish an association between adolescent pregnancy and unfavorable outcome for the child at a later age, a comparison group controlled on parity is essential. Such a group should also exclude the pregnancies of women over 35 years because of the increased frequency of neurological and intellectual deficits associated with pregnancy late in reproductive life. The results of a comparison controlled on parity is presented later in this report.

Children in both groups were performing, on most tests, well below national norms. However, some strengths were apparent, particularly in self concept. We believe that with appropriate training and guidance, many of these children can become productive adults and motivated toward success even now. A more detailed comparison of high achieving children vs. low achieving children will be discussed in the section "Success vs. Failure."

FINDINGS - Section II

ENVIRONMENTAL INFLUENCES

A. General Family Characteristics

These characteristics will be discussed, in detail, as part of the sections dealing with the social well being model. However, a few basic family characteristics are presented here for reference purposes.

(1) Racial Distribution

There were 378 (81%) black children and their families and 88 (19%) white children, proportions generally similar to the whole JHCDS sample.

(2) Age of Mother at Birth of Study Child

The age at delivery of the mothers is shown in Table 17.

TABLE 17

Age at Delivery of the Mothers

Maternal Age (in years)	Number	Percent
≤ 17	77	16.5
18 - 20	87	18.7
21 - 25	140	30.0
26 - 30	85	18.2
31 - 35	47	10.1
36 - 40	24	5.2
> 40	6	1.3

In the JHCDS study as a whole, just over 12% of mothers were 16 years and below at delivery and an additional 2-3% were 17 years. In all, in the OCD sample of 466, there were 77 (16%) mothers who were 17 years or less at delivery of their study child and an additional 112 (24%) women of 18 years and above who had had one or more prior children as adolescents. Thus, among this group of 466 women, 40% had had one or more pregnancies as adolescents. This is one factor which makes comparisons between the children of young and older mothers difficult and perhaps invalid, without controlling for parity.

(3) Family Style

Of the 466 OCD study of 12 year old children, 52% were living in a nuclear family, with the mother and father (who may not have been the biological father). However, only 137 (29.4%) were in family situations where both mother and father had been present for the entire 12 year period. Thus, the generally accepted as desirable nuclear family existed throughout for less than one-third of the children in this study. In an additional 55 (11.8%) families both parents had been present during the first 7 years of the child's life. The remaining children had lived with only one parent (usually the mother), a grandmother, other relatives or with foster or adoptive parents for all or significant periods of their lives. There

was a substantial difference in the proportion of nuclear families among the adolescent mothers (35%) and the more mature mothers (56%) suggesting a greater degree of family stability among the older women. Among the children of adolescents 6.5% were living with other than a parent or relative as compared with 2.5% of children of mature women.

(4) Death of Mother

During the 4 year interval since the 8 year JHCDS examination, 9 of the 466 mothers had died, 8 blacks and 1 white. One of the black mothers who died had a set of twins included in the OCD study. Three died of malignancies, one of a heart attack, two (probably three) from chronic alcoholism. We are still awaiting a report from the Medical Examiners Office on the remaining women. These women ranged in age from 26 to 61 years at the time of death. Four were less than 40 years. There has been a surprisingly high mortality among both mothers and fathers in this inner city population.

(5) Socio-economic Level

When the annual income of the families was assessed at the 12 year level, it was found that 48.4% reported a total family income in excess of $10,000, 30.4% were between $5,000 - $9,999 and 21.2% were below $5,000. This represented a considerable

increase in family incomes since the birth of the child 12 years before. In 1964 the median income for the United States was $6,569, and by 1976 it had reached $14,938. In the State of Maryland the per capita income advanced from $3,511 in 1969 to $5,299 in 1974, a 50% increase for the 5 year period. The levels in Baltimore City, while somewhat lower ($2,874 in 1969, going to $4,330 in 1974), showed a similar rate of change. The median household income in Baltimore City in 1973 was $10,576*. The national and local figures are presented to provide reference points. They do indicate that the very sizable gains made by most study families reflect the changes in the larger spheres. These changes reflect a combination of the upward mobility which accompanies increasing experience and age and the very real inflationary pressures which have continued throughout the 12 year period.

B. The Geographic Environment

The locale in which this study has taken place is, generally speaking, urban Baltimore. At the beginning of the study (1963 and 1964 for this subsample of 466), most lived in East Baltimore, in close proximity to The Johns Hopkins Hospital. The area surrounding the Hospital is on the fringes of the 'downtown area'

*Bureau of Census, Suitland, Maryland

separated from it, at that time, by a wide area of railroad tracks and now by a major highway. Housing consisted, for the most part, of blocks of small row houses, mostly of brick or formstone, opening directly to the sidewalk, or very large, multistory, subsidized public housing. The white families tended to live in small enclaves among the black families but their children went to the same schools. Much of the housing was decaying; there were few trees and fewer parks. Play space was very limited forcing children into the streets. Schools and libraries, like the houses, were also old and decaying and predominantly black in both attendance and staff. During preceding years, large areas had been cleared of their old houses and the ground bulldozed in preparation for new housing, which after more than 12 years is just now being completed. These rough, vacant areas provided open space but gave the area a 'blitzed' appearance. The corner grocery store was disappearing and shops were few and far between, and generally on a par with other structures. Prices seemed higher and quality less than in suburban stores, excepting in the market, which has been subsidized in part by the City for many years.

There were quite a number of small churches scattered through the area, many of store front or similar character, but there have also been several substantial churches both in terms of buildings and

and patronage. Small taverns have been more numerous than the churches. They have been, for the most part, quite derelict in appearance, but heavily patronized.

Another characteristic, over the years, has been the large number of males who lounge about on door steps and street corners, a reflection of chronic unemployment which has averaged 6 to 10% among older males and up to 40% among teenagers and men up to 25 years of age. Crime, including mugging, automobile theft, shoplifting, petty stealing and attacks by one person on another, has been commonplace. During the urban riots in 1968 there was looting and burning throughout the area. There have been high frequencies of alcoholism and drug abuse particularly, but not exclusively, among young males.

This has not been the most depressed area in Baltimore, but as one drives through it day after day, the impression is dreary and dispiriting. It seems to offer little in the way of physical amenities, beauty or cultural stimulation and much in the way of pollution and noise. It is important to realize that some children have never been more than a mile or two from home; others have had summer camp and similar experiences through scouting or other organizations.

The major employment opportunity has been that offered by the Johns Hopkins Medical Institutions which, in addition to employing local residents, results in a great influx of cars and people every working day.

During the study, some homes were clean and attractively furnished; books and records were in evidence. Others were dirty and chaotic with no evidence of efforts at intellectual stimulation or emotional support. These contrasts were, and still are, also true from one apartment to another in the public housing.

There were, between 1960 and 1975, only 6 to 8 physicians in private practice in an area containing 100,000 people. Many of the people sought care in the various hospital clinics, often maintaining a continuous relationship, but others, all too frequently, received care only in an episodic fashion dictated by emergency. This too is beginning to change with the development of new concepts in health care.

There is no question that within the general state of depression and decay, some areas were better off than others and the considerable diversity must not be overlooked. Also, over the past 12 years, there have been changes, generally for the better. New housing, rehabilitation of old housing, some little parks and

play areas and an obvious general improvement in living conditions have helped. Family size appears to have decreased and poverty seems generally somewhat less grinding.

Against this general background we have been able to track the Child Development Study families as they have moved physically during the child's first 12 years.

C. Mobility of the Study Population

Physical

At time of entry into the Child Development Study, the majority of study families lived within a 2 mile radius of the Johns Hopkins Hospital and the Study Center, i.e., they were inner city residents. In the more than 12 year period since the mother registered for prenatal care, there has been great physical mobility with a 'fanning out' toward the suburbs (see Tables 18 and 19). When the number of moves in place of residence were examined, it was clear that the white families had moved more frequently over the years than the black. Only about 11% of blacks and 6% of whites had the same place of residence over the 12 year period.

TABLE 18

Number of Residential Moves During 12 Year Follow-Up

Number of Moves in 12 Years	BLACK	WHITE
None	10.9	5.7
1 - 3	53.5	36.8
4 - 6	24.5	32.2
7 - 10	9.2	18.4
≥ 11	1.9	6.9

n = 455 (11 unknown - 10 black, 1 white)

Overall, almost 15% of the families moved out of Baltimore City during the 12 year period; with only 1% not located. The moves to 'out-of-town' areas are shown in Table 19.

TABLE 19

Residential Moves Away from Baltimore City Among 466 Families

Moves from Baltimore City	Black	White	Total
to Baltimore County	22	25	47 (10.1%)
to another part of Maryland	5	2	7 (1.5%)
to another state	3	4	7 (1.5%)
to parts unknown	3	3	6 (1.3%)

D. Characteristics of the Study Families based on 1970 Census Tract Data

In an effort to obtain some insight concerning ecological changes experienced over the 12 year time span by the children and their families, 1970 census data were used as a bench mark and comparisons made, based on place of residence when the child was born in 1964 and again in 1976-77 when he/she was 12 years old. We are well aware that this is a crude method of assessing social mobility. The method tends to minimize the extent of the change, particularly in view of accelerated socio-economic changes since 1970, with enforcement of open housing, better job opportunities and inflation. However, 1970 was the mid-point in the 12 year time span. The observations provide: (1) reasonable estimates of trends to which the study population was exposed; and (2) yet another illustration of the heterogeniety of the study population. It must be remembered that census tract information is based on grouped data and may lead to ecological fallacy for individual cases. Furthermore, the census tract data are cross-sectional, at one point in a period of continuing and rapid change.

The census data were used to provide information in the following areas:

(1) Total Population of Census Tract

(2) Racial Composition

(3) Marital Unrest Index

(4) Fertility Rates

(5) Median Income

(6) Home Owner Occupancy Rate

(7) Average Housing Value

(8) School Load Index

(1) Total Population of Census Tract

The total population provides a measure of the size of the population of the area. The study families were distributed as indicated in Table 20 which follows.

TABLE 20

Population Density Exposure of Study Families (n=466)

Census Tract 1970 Population	BLACK 1964 %	BLACK 1976-77 %	WHITE 1964 %	WHITE 1976-77 %
1001- 2500	2.4	5.3	21.3	6.7
2501- 5000	45.3	37.4	57.3	60.0
5001- 7500	40.4	39.6	20.0	32.0
7501-12000	11.9	17.7	1.3	1.3

In 1964, 47.7% and in 1976-77, 42.7% of black families lived in areas with less than 5000 population as compared with white families (78.6% in 1964 and 66.7% in 1976-77). On the other hand, a larger proportion of black families than white lived in the more densely populated areas at both points in time.

(2) Racial Composition

In 1964, 97.5% black study families lived in census tracts which were 50-99% black, i.e., predominantly black. In 1976-77 the percentage had decreased to 73%. In 1964, 18.7% of white study families lived in census tracts which were 50-99% black. By 1976-77 the proportion of white families in predominantly black areas had dropped to 1.3%. Over the 12 years, the black study families seemed to have moved toward a greater degree of integration while the white families moved away from integration.

(3) Marital Unrest Index

This index is the ratio of divorced and separated persons to those now married in the census tract. It is a measure of family disorganization for the population area. A ratio of 1 represents an even balance but a large proportion of incomplete families.

The black families lived in areas of greater marital unrest as compared with the whites at both points in time. But as may be

seen in Table 21, the overall situation improved for both races over the 12 year follow-up period.

TABLE 21

Marital Unrest Index for Study Families

INDEX RATIO	BLACK		WHITE	
	1964 %	1976-77 %	1964 %	1976-77 %
≤ '20	12.0	41.3	63.6	93.3
'25 - '50	56.8	46.1	33.6	6.7
'55 - '95	25.3	9.7	2.7	0
≥ 1.00	5.8	3.0	0	0

(4) Fertility Ratio

This ratio is expressed as the number of children under 5 per 1000 women in the childbearing period (15-44 years). It describes the natural growth rate of the population in the area.

The fertility ratios for both black and white families were essentially the same at both points in time (see Table 22). There was some decrease over time for women of both races, but the decrease is small which seems somewhat surprising in view of the increased availability of abortions (since 1970), contraceptives and sterilization procedures.

TABLE 22

Distribution of Study Family by Fertility Ratio of Census Tract

Fertility Ratio	BLACK		WHITE	
	1964	1976-77	1964	1976-77
< 300	3.2	3.9	0	0
300 - 500	78.5	86.2	85.2	90.6
> 500	18.4	9.8	14.8	9.4

(5) Median Family Income

The figures for the 1970 census were supplied by the Regional Planning Council. It must be remembered that they are median figures with 50% of the population of the area above the median and 50% below.

The distribution of the study families with respect to the median income of the census tracts within which they were living in 1964 and 1976-77 is shown in Table 23. In 1964, a median family income level of $5,000 or below was recorded in the census tract for 36.5% as compared with 14% in 1976-77, a better than 100% improvement. Over the 12 years, about the same proportion, but not necessarily the same people, remained in the $6,000 - $10,000 annual income range, 67% in 1964 and almost 70% in 1976-77.

However, the proportion with an annual income of $10,000 or greater increased from just under 2% in 1964 to almost 16% in 1976-77.

When the two racial groups are compared with respect to the median income of their census tracts, it is clear that the black families lived in poorer tracts at both points in time than the whites. There was improvement experienced by both groups, with the blacks showing a greater degree of improvement than the whites.

TABLE 23

Distribution of Study Families With Respect to the Median Income of the Census Tract Within Which They Lived in 1964 and 1976-77

Median Income (dollars)	BLACK		WHITE		TOTAL	
	1964 %	1976-77 %	1964 %	1976-77 %	1964 %*	1976-77 %
≤ 5,000	36.5	17.0	6.7	1.3	31.3	14.3
6,000-10,000	62.1	69.1	90.6	74.7	67.1	70.0
≥ 10,000	1.4	13.9	2.7	24.0	1.6	15.7

*one white income in 1964 unknown

In considering changes of income over the 12 year period, the effect of inflation has obviously been at work. Nonetheless, approximately 70% of the study mothers had perceived their families as

better off when queried at the time of the 7 year examination than they had been seven years earlier when the child was born.

(6) Home Owner Occupancy Rate

This rate is the percentage of occupied housing units that are owner-occupied. The base of the percent includes occupied rental and home ownership units. The measure describes the tenure of housing in the area.

The white study families lived in areas where the owner occupancy rate was substantially higher than was the case for the black families at both points in time. However, black families showed marked gains over the 12 year period. These data are summarized in Table 24. Overall, at the 12 year level, 34% of the mothers reported home ownership with 38% of the older and 20% of the younger mothers being owners.

TABLE 24

Distribution of Black and White Study Families by the Owner Occupancy Rate of the Census Tracts Within Which They Lived in 1964 and 1976-77

Percent Ownership	BLACK		WHITE	
	1964 %	1976-77 %	1964 %	1976-77 %
≥ 5.0 - 25	66.7	36.6	13.3	2.7
30 - 45	22.2	30.0	29.3	9.3
50 - 70	11.1	30.3	44.1	56.0
75 - 95	0	3.1	13.3	32.0

(7) Average House Value

The mean value of the housing describes the stock of home ownership housing (i.e., owner occupied or vacant for sale) in the area.

The average value of the houses in the census tracts in which the study families lived in 1964 and 1976-77 is shown in Table 25. There has been a distinct shift over time toward higher house values in the areas where the study families are living. This would seem to reflect both upward mobility into better areas and the effect of inflation on housing values.

TABLE 25

Distribution of Study Families by the Average House Value of the Census Tracts in Which They Lived in 1964 and 1976-77

Average Value (1970 dollars)	1964 %	1976-77 %
4,000- 4,999	9.4	6.1
5,000- 7,499	51.2	31.5
7,500- 9,999	28.8	29.7
10,000-11,999	5.8	14.5
12,000-14,999	4.2	10.0
15,000-19,999	0.6	6.0
≥ 20,000	0	2.2

(8) School Load Index

This index is the ratio of children 6-17 years to the adult population 18-64 years. It provides an index of the number of children of school age supported by the working population of the area. An unusually large school load is indicated by a ratio of .50 or greater. As summarized in Table 26, the school load was substantially heavier in the areas where the black study families lived as compared with the whites. The load was reduced over the 12 year period for both black and white families, particularly the black, but nonetheless, it was still substantial for these families.

TABLE 26

Distribution of Black and White Study Families by the School Load Index of the Census Tracts in Which They Lived in 1964 and 1976-77

School Load Index	BLACK		WHITE	
	1964 %	1976-77 %	1964 %	1976-77 %
0.05 - 0.45	29	41	81.3	86.7
0.50 - 1.20	71	59	18.7	13.3

The substantial decline in the number of school-aged children in the census tracts lived in by the study families has probably further accelerated with the falling birth rate since 1970.

IN SUMMARY

We have a picture of a group of over 400 study families who originally, i.e., at the time they entered the study, at the first visit for prenatal care, lived in inner city Baltimore, in socio-economic conditions which were lower-middle and lower class. In the more than 12 years which elapsed, only a small proportion stayed in the same residence. By and large, as they moved, the average housing values and average incomes of the new census tracts into which they entered were higher than the old, a reflection of both upward mobility and inflation.

APPLICATION OF THE SOCIAL WELL BEING INDEX

Demonstration Using First Ten Interviews

The data collected by interview with the mother were coded for analysis. In order to test the application of the Social Well Being Index, the data have been reviewed for the first ten interviews obtained from the mother of the 12 year olds and fitted into the index. In an attempt to demonstrate the manner in which the Social Well Being Index could provide a basis for the assessment of more detailed environmental data, a subsample was selected. The following discussion deals with the five components of the index in terms of a series of indices which have been constructed to tap each of the dimensions of interest. Although the examination of ten cases is, by definition, limiting, the objective is to demonstrate the function of the index rather than to identify possible relationships.

The background for use of the SWBI and its main components are discussed in the Introduction of this report, pages 9 - 14.

GENERAL WELFARE

The dimensions of income, education and occupation are generally regarded by social scientists as the strongest indicators of socio-

economic status. Therefore, the first sub-index represents an endeavor to juxtapose the three.

Income

Income was determined by asking the respondents to note all sources of revenue and the amount from each, for the past six months. The total figure was then doubled to provide an annual amount. On the basis of the distribution observed within these ten cases, cut off points were selected to denote high, medium and low rank with regard to this variable. Although, the demarcations were somewhat arbitrary, they were made in an effort to preserve substantive and quantitative integrity.

Low rank was assigned to respondents with a total income below $10,000 per annum; medium rank to persons earning $10,000 to $18,000; and high rank to those who reported incomes in excess of $18,000 per year. This resulted in two respondents in the high, two in the low categories and the remaining six in the middle strata.

Education

Educational achievement was assessed for the mother and social father. In that they were representative of the same family unit, the decision was made, based on the small sample size, to assign a rank value in accordance with the parent who had achieved the highest level of education.

Those who had failed to complete high school were assigned low rank, those who had graduated from high school, but had no further education were granted medium status on this dimension, while those who had achieved additional training, either collegiate or technical, were assigned high rank. This division resulted in two low, four medium, and four high rank assignments.

Occupation

Occupational status was examined in terms of the Duncan SES and Decile Scales, and the Census SES Scale. For our purposes, and in light of the detail provided, this analysis was based on the Census SES Scale. This scale is expressed on a 98 position continuum. The same principle noted for the educational components was employed for occupational status. That is, the highest occupational status of the two parents was selected for inclusion in the index.

The rank delineations were specified as 40 or below as low rank, 41 to 65 as medium, and 66 or above as high. By assigning rank values in this manner, three respondents received low rank, three moderate, and four high rank.

SES Index

By taking the rank values for each subject, on each variable, the index presented in Table 27 was constructed. The basic guide-

line for the assignment of an overall status rank was to register a consistent rank on at least two of the dimensions with a discrepancy of no more than one rank value on the third, and where all three ranks varied an overall mean rank was provided.

TABLE 27

SES Index

Subject #	Income	Education	Occupation	Overall
1	2	1	1	1
2	2	1	2	2
3	1	2	1	1
4	1	1	2	1
5	2	3	3	3
6	3	3	3	3
7	2	2	2	2
8	2	2	1	2
9	3	2	1	2
10	2	1	3	2

This procedure resulted in the assignment of an overall low SES rank to two, medium to five, and high rank to three families. This may appear to be a particularly high distribution of status in an inner city population. Upon preliminary analysis, however, this distribution does not appear to be unusual in comparison to the

overall study population. Furthermore, it can be argued that evaluation of individuals should be carried out in reference to their respective socio-cultural milieu, rather than in relation to a national barometer which holds little, if any, significance for specific population segments. Thus, one of the advantages of this approach is the provision of a sliding scale which can be adjusted to any population in question. Perusal of the results presented in Table 27 provides convincing evidence for the heterogeneity of the subsample as there is considerable variance with respect to the distribution of the three variables making up the SES sub-index among the individuals in the population studied. Grouping the data would clearly result in an ecological fallacy.

Home Environment Index

In addition to the income, educational and occupational status of the respondents, a number of questions were posed with regard to the mother's (and child's) home environment. A total of eight items were investigated, with the responses categorized in terms of high, medium and low. These individual ranks were then added, and an overall rank of high, medium or low was assigned to each family based upon the total rank score.

Type of Domicile Unit

High rank for domicile unit was assigned for those respondents who resided in a house, medium rank for those who lived in an apartment and low rank for those who lived in other or shared units. In the case of the selected ten respondents, all lived in a house by themselves, and were thus assigned high rank on this variable.

Number of Rooms

The highest rank evaluation was offered those with eight or more rooms in their home, medium rank for homes with five to seven rooms, and low rank for four or less. With this classification, one family was assigned high rank, one low rank, and the remaining eight were given a medium evaluation.

Number of Bathrooms

If the domicile unit had two or more bathrooms high rank was given, one bathroom earned medium status, and shared bath facilities with other families received low rank. This resulted in an even distribution of five families in the high, and five in the medium categories. In that all lived in houses, clearly none of these respondents shared bath facilities with others.

Density Ratio

Perhaps a more sensitive measurement of the adequacy of space would be a density ratio of the number of persons in a household and the number of rooms available for use. Although a precise ratio cannot be constructed from the grouped data available, an indication is possible.

The mothers were asked "how many persons are currently living in your home?" The responses were coded into three categories with corresponding rank. They were: high rank for five or fewer; medium rank for six to nine residents; and low rank for ten or more persons living in the home.

Using this procedure: three of the families were assigned a medium rank on both dimensions, i.e., number of rooms and number of persons; six of the families enjoyed a positive ratio, i.e., a higher rank for number of persons than for number of rooms; and only one respondent had a lower rank for the number of persons, as compared to the rank for the number of rooms in their home.

It would appear, then, from this somewhat primitive density assessment that the domicile unit of these families meets their relative spatial needs. Indeed, this conlusion was reinforced by the mother's responses to the specific question of adequacy of space.

Adequacy of Space

The mothers were asked if the amount of space they had fit their needs. Those who noted that they had more than needed would have received a high rank evaluation, those with just about enough were assigned medium rank, and those who indicated that they did not have enough were given low rank. For the second time, all ten answered in an identical fashion. All reported that they had just about enough.

Children's Space

The item tapping this dimension inquired about whether the study child had a place where he could play or study without being disturbed. If the response offered was yes, his bedroom, high rank was afforded; yes, living room, dining room, basement, hall, kitchen, or other, earned a medium rank; and a negative response was assigned a low rank. The subsample had three high rank and seven medium rank scores for this dimension.

Sleeping Arrangements

If bedrooms only were used for sleeping a high rank was given; if bedrooms and the living room were employed a medium score was achieved; and bedrooms or any other combination resulted in a low score.

Although all of the mothers of the subsample reported that only bedrooms were used for sleeping, sharing patterns were recorded. Only three of the study children enjoyed single occupancy of their bedrooms. Five of the children shared their bedroom with a sibling of the same sex, and two shared their room with a sibling of the opposite sex. Eight of the respondents reported that the study child did have his/her own bed, while the two who shared a bed, did so with a sibling of the same sex. Single bed occupancy was given high status, sharing with a sibling of the same sex, medium status and with a sibling of the opposite sex low rank.

In constructing the summary index for this dimension, high rank on each item was assigned the value of one, with medium and low ranks following with the values of two and three respectively. Thus, the minimum value that could be attained was nine, while the maximum was 27.

Those respondents who registered point totals of 9-13 were seen as having very adequate home environments; 14-21 adequate and 22-27 inadequate. This division resulted in one overall high evaluation, 7 moderate determinations, and two low assessments.

Although this indicator somewhat parallels the previous index of income, occupation and education, it results in a slightly

overall lower ranking. Indeed, in terms of final rank determination, only three of the ten cases had attained the same relative status.

In addition to these two indices, several single item indicators were used to tap the overall welfare component of social well being. However, none of these questions correlated with the overall indexes very well.

FAMILY STRUCTURE

The initial effort to assess family health is represented by a five question index. Coded values were assigned to each response by each mother. A total score was then computed for each respondent, and that score was interpreted in terms of socially healthy, moderately socially healthy or unhealthy socially.

The first question asked with whom the study child was living. The response alternatives were: mother and father or adoptive parents; mother or father only; other relatives or mother and her relatives; in a foster home; or an institution. Six of the mothers selected the initial category, while four noted the second. Thus, on this dimension, this small subsample was quite healthy.

Secondly, marital status was assessed. Parents, married and living together, received the highest rank, followed by the mother, separated or divorced, but living with a man and lastly, by the mother, widowed, separated or divorced or living as a single parent. Half of the respondents were presently married, while three others were separated or divorced, but living with a man. Therefore, eighty percent were realizing or approximating the nuclear family structure. One mother was widowed, while the remaining respondent was separated or divorced. Again, the overall perspective would suggest a relatively healthy, stable situation for this small group.

Stability was also tapped by the question of how long the respondent had lived in her present residence. Four years or more were considered stable, with the categories of 2-3 years, 1-2 years, and less than one year following in respective order. Three mothers reported living in their present location for four years or more; one for 2-3 years; two had lived in their present home 1-2 years; while the remaining four had been in their present homes less than one year.

While on the surface, this absence of stability would reflect negatively, it might well be that this mobility is upward and a product of social stability. This interpretation is particularly viable after viewing the socio-economic data.

To gain additional insight, the mothers were asked how many moves they had experienced since the study child was born. No moves was seen as the most stable, with one, two and three or more suggestive of less respective stability. In only one instance had the mother remained in the same residence since the child's birth 12 year before. Three mothers reported one move, four noted two moves, while the remaining two had moved three or more times in the last twelve years. It should be noted, however, that the moves reported by these mothers may be reflective of social mobility as well as geographical. If this is the case, some movement can be seen in light of continued stability. Unfortunately, the data do not permit analysis of this type of subtle distinction.

Finally, the mothers were asked about changes in the family constellation in the last five years, excluding biological increments. If there had been no additions or deletions, the evaluation of greatest stability was made. Similar to the above questions, one, two or three or more changes were the other response alternatives.

These questions provided a range of possible scores of five to twenty. Scores of five to ten were considered healthy (stable); eleven to fifteen were seen as moderately healthy and sixteen or above as unstable. This scoring procedure resulted in five respondents falling into the healthy category, two in the moderate

interval, and three in the unstable. It should be noted, however, that these latter three were borderline in that their scores were the minimum of sixteen.

On the basis of these five dimensions, then, the families of this small study group appear to be relatively healthy.

The mothers were then queried about a series of activities that are sometimes perceived as family projects. These activities were further divided into those relating to the home, leisure activities in the home, and leisure activities away from the home. Each of these questions had the same response alternatives which were: adult only; sibling and adult; siblings; mother and child; father and child; and entire family. These were scored 1-6 respectively with the larger score indicating greater family stability. A negative response or no answer received a score of zero.

The first index consisted of four questions which dealt with shopping, preparation of meals, cleaning the house and doing laundry. The possible range was 0-24, with 0-8 representing what was considered to be a socially unhealthy state, 9-14 moderate health, and 15 or more a healthy condition. This scoring procedure resulted in one unhealthy family, albeit the highest unhealthy score possible; five moderately healthy family units; and four healthy or stable family patterns.

The second index is concerned with leisure activities in the home. The activities include watching television or listening to the radio, reading newspapers and magazines, having parties, and having a hobby (collecting, making or doing). The range and division of scores are identical to the above index.* This procedure resulted in one socially unhealthy score (same mother that registered such for home activities), and the remainder were healthy, with all recording index scores above 15.

The index which dealt with leisure activities away from the home consisted of: go for walks, go for a drive in the car, make a trip somewhere by bus, train, or plane (the trip would be formally weighted more heavily in that it requires more effort and money), go to the movies, visit friends and relatives, go on picnics or trips to beaches and parks, go to library, go to parties, go to sport events, or any other activities. With these ten items, the range extends from 0-60 with the score intervals being: 0-31 unhealthy, 32-41 moderately healthy, and 42 or more healthy. This division saw three respondents as being unhealthy, four moderately stable, and three healthy.

*While weighting is important in any index, it is particularly applicable to this one in that the last two dimensions represent active behavior, while the first two tapped passive behavior. With only ten respondents, however, it is not reasonable to attempt to assign weighted values. These scores must be, at best, indicative rather than absolute.

Although this index resulted in a more pessimistic picture for this subsample, it should be noted that it is much more eclectic than the preceding ones. In addition, some of the activities are expensive and require additional expenditures of time. With this in mind, the lower evaluations can be seen in a more positive light.

A final index tapped the general family stability and satisfaction. The mother was first asked how many evenings during the week does she stay at home. One or two was seen as not very often, three or four, fairly often, and five or more as most of the time. The same question was asked with regard to the man of the house.

All but one of the mothers spend five or more evenings a week at home, the exception being present only once or twice a week. Seven of the men were home most of the time, two of the mothers were not living with a man, and the eighth respondent reported a frequent absence, with her man being present only one or two evenings a week. Interestingly, this was the same family where the mother was frequently absent. Thus, nine of the ten respondents had maximum parental presence.

To supplement this, the mothers were asked if they preferred to be by themselves (with their family) or with persons outside of the

household. Four mothers registered a preference to be with others with the remainder noting they preferred to be with their families.

The fourth question of this index asked about the respondent's satisfaction with life, and this was followed by the same question concerning the man of the house. The choices for each were: not at all satisfied, somewhat satisfied and very satisfied. Three mothers reported that they were very satisfied, four said they were moderately so, and three suggested that they were not at all satisfied. Of the eight who had a man living in the house, two said he was very satisfied, four were felt to be moderately content, while the remaining two were seen as not being satisfied at all.

The final question asked about the mother's perception of her homelife in general compared with that of others. The mothers could select from the choices of: we don't get along, about the same as most families, and better than most families. Eight of the subsample mothers perceived their family units as more harmonious than others, while one said about the same, and one said worse than others. In general, it would seem that the satisfaction level is quite high with this group of mothers.

The possible range for this index is 6-17. Using the intervals of 6-11, 12-15, and 16-17, the subsample included two mothers who were low, six in the moderate category, and two in the high.

The general sense of optimism noted above and elsewhere in this report is reflected in these relatively high index totals.

A number of additional single items were asked to gain insight into the question of family stability. For example, who makes the most important decisions, and who is the backbone in the family. In both cases, the predominant response was the equal division between the mother or man of the house. Similarly, the mother or father would be missed the most if they were to leave.

Additional approximations to normative family living were registered in response to questions about: willingness to listen to problems, help in solving problems, making members of the family feel good when they are down, etc.

In summary, this subsample reflects a level of stability and satisfaction which must be seen as socially healthy. The optimism that has been commented upon throughout is solidly anchored by real achievements. Social mobility through improved, socio-economic status has occurred, current satisfaction with housing is reported, etc. These items may well reflect the upward mobility which has taken place in the total population over the past twelve years, and which is discussed in other sections of this report.

COPING

The expression of coping skills requires the presence of some type of stimuli for activation. The mothers in this study were asked if they had had to deal with a wide variety of situations which are generally recognized as stressful or crises conditions. It is to be emphasized, however, that what represents a crisis to one person may not be such to another. The tabulation of the conditions asked about, then, should be interpreted in a general manner.

Three mothers noted that they have had difficulties due to insufficient money; half suggested problems with relatives or friends; four had experienced job problems; three noted problems in the neighborhood; three of the respondents mentioned problems with children in their neighborhood; three reported problems with children in their household; two noted household drinking as a problem; four had experienced some type of involvement with the police; seven had recent deaths in their family; three of the eight mothers living with men mentioned difficulties with this relationship; four noted health problems; and three of the respondents reported other problems not included in the list.

If these types of situations are deemed stressful, and they are all included in stress indicator tables, the mean number of stressful stimuli experienced by these women is 4.4 per respondent.

The minimum was one, reported by one mother, and the maximum was eight noted by two.

Although most of us would agree that these respondents were exposed to considerable stress, an index of relative exposure can be constructed. A value of one was assigned to a negative response in each of the twelve areas of stress the mothers were asked about, a value of two was assigned to each affirmative response, with no value assigned to the response of 'not applicable.' These values were then summed for each respondent, resulting in a range of scores from 11 to 20. These scores are misleading, however, The total absence of stress for any respondent would result in a minimal total of 12, and no mother reported a complete absence. The decision was made, then, to subtract the number of items the mother reported as being 'not applicable' from the total of twelve. The total stress score was then divided by the number of items the mother actually responded to, resulting in a per item stress mean, with a range of 1.10 - 1.70. The per item mean stress scores were then multiplied by the constant value of twelve which resulted in a twelve item stress indicator score for each respondent. This resulted in a range of 13.2 - 20.40 with a mean value of 16.62 and a standard deviation of 2.96.

Those respondents with mean stress scores of 14 or less were seen as being exposed to minimum stress; 14.01 - 18 represented moderate stress; and 18.01 or higher indicated high stress. This resulted in the assignment of 3 mothers to the low stress group, three to the moderate and four mothers to the high group. Therefore, the women in this subsample were, for the most part, exposed to moderate and severe stressful stimuli.

A second sub-index with respect to coping dealt with specific conditions and the steps which the respondents took to deal with them. Values were assigned for each condition in accordance with the following: (a) 1 was noted for an absence of any particular condition; (b) 2 was given to the mother who answered yes, and reported that she would have dealt with the situation in a manner that demonstrated a knowledge of community or other resources; (c) 3 to those who wanted to deal with the situation, but didn't know how; (d) a value of 4 to those who left the problem for someone else to handle; and (e) 5 to those who reported that they would not do anything at all.

In general, this subsample of mothers dealt with their problems competently. The specific difficulties they were asked about consisted of unexpected bills, gas or oil service being cut off, a child in trouble with law or police, husband or man of house (MOH) in trouble with law

or police, husband or MOH losing his job, an eviction notice, a child using drugs, a child in physical danger going to or from school, a child physically in danger in school, and/or a child being sent to a different school for bussing purposes.

The responses to these items by the mothers, evaluated as outlined above, resulted in a range of scores from 12 to 31, a mean of 19, and a standard deviation of 3.66. Using the interval 12-16 to denote good coping ability, 17-24 moderate ability, and 25+ poor ability, the respondents were divided into six, one and three mothers respectively.

By examining the two indexes, then, it is clear that, in general, these mothers are systematically exposed to considerable stress, but respond to such stimuli with confidence, and with knowledge of appropriate resources.

The mothers were also asked about the stresses of miscarriages, abortions, additional births, or a child that had died. None of the respondents in this subsample had experienced any of these conditions with the exception of one mother who had a child who died.

An attempt was made to construct a sub-index of coping skills related to care of the study child. Although the data for this small group do suggest some interesting perceptions, it did not fit together

as an index. For example, the mothers were asked who goes to the school when contacted by a teacher, principal, etc.? All but one of the respondents said the parent(s) goes or would go. Half of these mothers had never been contacted for negative reasons. Of those contacted for negative reasons, most said they would help the child, whether the difficulty be academic, behavioral, or health. Two mothers did admit to punishing their children for misbehaving and one for poor academic performance.

The mothers were then asked whether they would side with the school, child or both if they were to be called in because of a problem. Most of the mothers' responses suggested a reasonably objective orientation, seven said both. Two mothers said they would be on the school's side, while the final mother selected the child's side.

In a more general question, the women were asked if they felt they had the situation well under control when their children misbehaves. All of the mothers felt that they did. However, this optimistic picture is somewhat darkened when six of the mothers admitted to having been so angry at times, that they lost control. All acknowledge hitting their children under such circumstances, while two noted that they had struck their children

harder then they had intended. Further, four of the mothers acknowledged that they had said things to their children that they later regretted.

In summary, and in light of the perceived candor of these ten mothers, it can be concluded that these women cope with a number of stressful stimuli, care for and generally parent their children in an aware and concerned manner.

PERCEPTION OF SELF WORTH

The optimistic perspective which has been noted throughout this report would suggest that the mothers have, in general, an evaluation of self that is quite high. Although one scale score, the Srole Anomie Scale, is available from another source in this study, a number of single item indicators were included in the social survey.

The mothers were asked if they owned or rented their houses, and if the latter, what their prospects of owning were. Over half (6) of this small subsample owned their own houses, a fact which may contribute to the general feeling of optimism. Of the four who did not, two felt their chances were very good to become owners in the future, while two reported that they were not very good at all. While it is true that some people do not desire ownership, none of these mothers reported being in this category.

Secondly, the mothers were asked to offer their perception of the neighborhood, i.e., whether it was a very good, fairly good, or not a good place to live. Half of the subsamples reported that their respective neighborhoods were very good places to live. An additional three reported that their neighborhoods were fairly good places to live, while two indicated that their neighborhoods were not good at all.

The respondents were then asked how their present employment situation compares with that at the time the study child was born, and the question was repeated for the man of the house.

Two of the mothers were not working, but half of the remaining eight said their situations were better and two reported they were about the same. Only two suggested that they had been better off twelve years before. The data for the man of the house are incomplete in that five of the eight mothers said they did not know about the man's situation. Of the three who did answer, however, all said the situation had improved.

It is argued here that persons with high self concepts will be concerned with maximizing their physical health. With this in mind, the mothers were asked if they had any health insurance. Seven of the group carried Blue Cross/Blue Shield, while the remaining three were covered by some other form of health insurance.

In addition, the mothers were asked if they, or anyone in their families, received annual check-ups. Seven respondents answered positively. These same seven mothers also received an annual gynecological check-up, and six of these mothers reported an annual chest x-ray.

A final assessment of self concept was concerned with the mother's educational and occupational aspirations for their children. Seven of the 10 mothers hoped to send their children to college, and the remainder said through high school. The ambitious nature of this expectation has been suggested elsewhere in this report. With only an approximate 75% national rate of graduation from high school, and with less than 40% of those graduating going on to college, these aspirations seem optimistic indeed, especially when viewed in the light of the depressed academic performance of their children.

The occupational question inquired about the kind of job the mother wanted her boy(s)/girl(s) to have when they grow up. Unfortunately, the response offered did not lend themselves to coding. Most of the mothers said 'anything he/she wants to do.'

A more accurate insight can be gained from the last question which asked 'how good do they think the chances are for these goals to be realized.' Four of the ten said the chances were very good;

five thought they were fair, and only one thought there was little chance of success. This is optimistic in view of the prevalence of wishes for professional careers.

The finding within this group of a high self concept and general optimism continues to grow clearer. These are people who have confronted a variety of very real adversities, and feel they have overcome them.

SOCIAL PARTICIPATION

The dimension of social participation was assessed in terms of the extensiveness of personal interaction outside of the responsibilities of one's major social role, (i.e., exclusive of being a parent, spouse, and worker or student, etc.). It is postulated that involvement within the community in which one lives will broaden the base of experience, and thereby serve to enrich the quality of life. It is recognized that this gain does not apply to everyone, nor equally to those who are so influenced. Nevertheless, social participation does represent one area of social health, and the activities tapped in this survey promise at least a crude barometer of this area.

The mothers were asked if they attended PTA meetings, had ever served on a PTA board or committee, or were active in any way with the school. Further inquiries dealt with church attendance, involvement in political organizations, membership in a neighborhood group, voting patterns in both primary and general elections, and participation or membership in any other activities or clubs. Very simply, the responses were either yes or no.

Almost all (8) of the mothers said they attend PTA meetings, although only one noted membership on the board, and none were active in any other way with the school. Six mothers reported church attendance; one respondent was engaged in political activities, while three participated in neighborhood groups. Most of the respondents voted, with seven mothers casting a ballot in primary elections, and nine in general elections. Only four mothers mentioned participation in other activities, and only two acknowledged membership in any clubs.

In general, it must be concluded that these mothers are not very much involved in activities beyond their major social roles. It is interesting to note that the areas of greatest involvement are voting, PTA and church. It can be argued that each of these areas are directly relevant to the daily interests and concerns of the mothers and their families. That is, these involvements could be

seen as logical extensions of their primary roles. It would seem then, that these mothers are negotiating the major tasks and trials of daily living, and if much outside participation is in their plans, it is on the distant horizon.

Indeed, a single item indicator of social participation inquired about the mother's preference to be alone, with others, or both. Half of the mothers registered a preference to be alone. Unfortunately, the choices were presented as listed above. The alone response was meant to be interpreted as "alone with your family." However, it is felt that some of the respondents did not interpret "alone" in this manner, but saw "with others" as being with her family members. Therefore, this single indicator may well reinforce the index to an even greater degree than the data reflect.

SUMMARY

This effort represents an application of the Social Well Being Index to a very small sample of families, with what we believe to be interesting results. It has permitted, among these urban, predominantly black families, the discovery and demonstration of a remarkable diversity of ecological factors.

Further, the index and its sub-indices, appear to demonstrate a rather practical way of quantifying environmental influences. As many researchers have noted, it is very difficult to assess the effect of multiple environmental stimuli on the development of children. The Social Well Being Index seems to offer an approach, with considerable promise, to this long term concern.

THE SOCIAL ENVIRONMENT

We have described, in prior sections of the report, some of the basic characteristics of the study population, the geographic area in which the families lived and their patterns of physical and social mobility. In the preceding section, the use of the Social Well Being Index is demonstrated.

We turn now to a more detailed description of the social environment based on the mother's responses to questions in the interview schedule (see Appendix A). These responses address the variables believed to be the most important in providing a broad picture of the social environments of the children and are those which are synthesized into the SWBI.

While the data to be presented include a number of ecological variables, the analyses, to date, have of necessity been of the simple, single variable, descriptive type. No inter-variable or comparative analyses have been carried out. These descriptive findings are presented, however, dichotomizing the population into a group of 77 mothers who delivered their study child as an adolescent of 17 years or below and a group of more mature mothers of 18 years or above. As was the case in reporting the psycho-social outcomes of the 12 year olds, comparisons are

between the social environments of the children of adolescent mothers and those of older mothers. The descriptions follow.

It should be noted that the frequency distributions are presented in terms of both adjusted percentages and the actual percentages. This provides a more accurate representation of the data as in some instances a significant proportion of the sample is missing, particularly with respect to the father. There are two explanations for the missing data. One is that in some instances the mother did not have sufficient information to answer the question, reflecting perhaps the proportion of single women and the many changes in domestic arrangements. The other explanation is that the tabulations were processed using the total 466 record file and only 403 interviews were completed for the reasons discussed on page 19. As a result, the adjusted percentages give a more reasonable picture.

General Welfare (Socio-Economic Status)

Occupation

Sixty-three percent of the mothers were presently working, either in full-time or part-time positions. The majority (55.3%) were working full-time. As shown in Table 28, this proportion

was reasonably consistent between both groups of mothers, although a slightly larger percentage of young mothers were working and 59% of these women were employed full-time.

TABLE 28

Mother's Employment

Employed	Adolescent Mothers			More Mature Mothers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
yes, full-time	44	58.7	57.1	166	54.1	49.6
yes, part-time	5	6.7	6.5	24	7.8	7.2
no	26	34.7	33.8	117	38.1	34.9
TOTAL	75	100.1		307	100.0	
No Information	2		2.6	28		8.4

As may be seen in Table 29, among the fathers of the children of older women, 92% were working when the child was 12 years old, and 90% were working full-time. Employment of the fathers of the children of adolescents was slightly less favorable, but in general the men were younger. The overall unemployment rate for the comparison group was comparable with the national rate at this time and was probably slightly better than the rate for Baltimore

City, which was 10%. However, the rate (11.1%) for the fathers in the adolescent group was appreciably higher and again because of the bias in the data, the difference may be of greater significance than it appears here.

TABLE 29

Father's Employment

Employed	Adolescent Fathers			More Mature Fathers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
yes, full-time	31	86.1	40.3	185	90.2	55.2
yes, part-time	1	2.8	1.3	4	2.0	1.2
no	4	11.1	5.2	16	7.8	4.8
TOTAL	36	100.0		205	100.0	
No Information	41		53.2	130		38.8

Education

The educational level of the mothers, in terms of years of schooling completed, at the 7 year follow-up is shown in Table 30. At that time, only 38% had completed high school. Overall, by the time of the 12 year evaluation, 37% of the mothers had obtained additional education (Table 31). Half of the young mothers had gone back to school for some type of educational experience as

compared with only 33% of the older mothers. The young mothers, because of their age, were far behind the older mothers in educational attainment at the time their children were born and thus they had farther to go. As may be seen in the detailed study of the outcome of adolescent pregnancy, which appears in the next section of this report, they did not catch up even though there was significant educational activity after the birth of the child.

TABLE 30

Maternal Education Distribution by Grade Level Completed by the 7 Year Follow-Up (n=412)*

Highest Grade Completed	Frequency %	Cumulative Percent
7 or less	9.9	9.9
8	11.6	21.5
9 - 11	40.1	61.6
12	31.0	92.6
13 or more	7.4	100.0

*From Richardson, et al. Study of Knowledge and Attitudes Toward Family Planning and Population Control in JHCDS.

TABLE 31

Frequency of Additional Education Acquired by Mothers Between Child's 7th and 12th Year

Additional Education	Adolescent Mothers			More Mature Mothers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
yes	37	50.0	48.1	101	33.2	30.1
no	37	50.0	48.1	203	66.8	60.6
TOTAL	74	100.0		304	100.0	
No Information	3		3.9	31		9.3

The fact that, overall, 37% of the women had additional education after the birth of the child is a surprising and welcome finding. All too often inner city inhabitants are regarded as uninterested in education and lacking in appreciation of its value. This was obviously not the case for a substantial number of these women. It is suggested that they may reflect the national trend, of the sixties and early seventies, toward attaining a higher level of education for purposes of increased mobility, security and economic opportunity. The special emphasis placed, during the late sixties and seventies, an opportunity for minority groups may also have been a factor in facilitating the attainment of additional education or technical skill.

Examination of the type of additional education attained during the five years provides a more accurate picture (see Table 32). During this period, of all the mothers attaining additional high school education, 14.2% continued secondary training (27% of the adolescent mothers and 10% of the older women). About 30% of each group attaining additional education had some college experience. More of the older women had technical training of some kind, 54% as compared with 42% of the younger mothers.

TABLE 32

Type of Additional Education Acquired by Mother During Prior 5 Years

Level of Additional Education	Adolescent Mothers			More Mature Mothers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
Some High School	1	3.0	1.3	3	3.0	.9
High School Graduate	8	24.2	10.4	7	7.0	2.1
Some College	10	30.3	13.0	29	29.0	8.7
Some Technical	14	42.4	18.2	54	54.0	16.1
College Graduate	-	-	-	4	4.0	1.2
Graduate School or Professional School	-	-	-	3	3.0	.9
TOTAL	33	99.9		100	100.0	
No Information	44		57.1	235		70.1

When the educational attainments of the fathers were examined (Table 33) it was found that a lower percentage, 13.1% overall, had acquired additional education in the prior 5 years, perhaps because of the need for full-time employment. As may be seen in Table 34, the father (or man of the house) in adolescent families had had additional education, at a rate twice that of the more mature families (40% as compared with 20%). This finding may well reflect their younger age and that some were still in school at the time the child was born. It should be noted that this is an area in which there is a significant amount of missing data which may relate to the frequent changes in male partners which have occurred over the years in some families.

TABLE 33

Frequency of Additional Education Acquired by Fathers Between Child's 7th and 12th Years

Additional Education	Adolescent Fathers			More Mature Fathers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
yes	13	40.6	16.9	41	20.5	12.2
no	19	57.4	24.7	159	79.5	47.5
TOTAL	32	100.0		200	100.0	
No Information	45		58.4	135		40.3

TABLE 34

Type of Additional Education Acquired by Father During Prior 5 Years

Additional Education	Adolescent Fathers			More Mature Fathers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
Some High School	-	-	-	1	2.4	.3
High School Graduate	-	-	-	2	4.9	.6
Some College	4	30.8	5.2	8	19.5	2.4
Some Technical	6	46.2	7.8	21	51.2	6.3
College Graduate	2	15.4	2.6	5	12.2	1.5
Technical Graduate	1	7.7	1.3	2	4.9	.6
Graduate School or Professional School	-	-		2	4.9	.6
TOTAL	13	100.1		41	100.0	
No Information	64		83.1	294		87.8

Family Income

A comparison of family income between young mothers and more mature mothers is presented in Table 35. At the 12 year level, as at the birth of the child and at 7 years thereafter, the family income of young mothers was significantly below that of the older women. At the 12 year level, twice as many (36.1% vs. 17.8%) were still in the 'less than $5,000 per year' income bracket. Just over half of the older mothers were in the 'more than $10,000' bracket as compared with 36% of the young women.

TABLE 35

Family Income

Income Level	Adolescent Mothers			More Mature Mothers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
Less than $5,000	26	36.1	33.8	53	17.8	15.8
$5,000-$10,000	20	27.8	26.0	92	31.0	27.5
Greater than $10,000	26	36.1	33.8	152	51.2	45.4
TOTAL	72	100.0		297	100.0	
No Information	5		6.5	38		11.3

In summary, the socio-economic status had, in general, improved over the years with increasing age and experience of the families. Nonetheless, in general, the families of adolescent mothers were clearly disadvantaged in all the parameters of social welfare (education, occupation and income) examined even though the comparison group include 24% of women who had themselves first delivered as adolescents.

Marital Status

As may be seen in Table 36, 55.1% of the mature mothers (for whom information was available) of the study children were married, though not necessarily to the father of the child; 8% were widowed; approximately 10% divorced; 15.3% separated from their husbands and 11.1% were single. By contrast, only 37.7% of the adolescent mothers

were married; 19.5% were single and the frequency of the divorce and separation considerably higher than for the older women.

TABLE 36

Marital Status When Child was 12 Years Old

Marital Status	Adolescent Mothers			More Mature Mothers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
Married	29	37.7	37.7	173	55.1	51.6
Widowed	4	5.2	5.2	25	8.0	7.5
Divorced	11	14.3	14.3	33	10.5	9.9
Separated	18	23.4	23.4	48	15.3	14.3
Single	15	19.5	19.5	35	11.1	10.4
TOTAL	77	100.1		314	100.0	
No Information	-		-	21		6.3

The fact that 55% of the older mothers were married is not incompatible with national norms in light of considerable marital instability in our society. The identification of the person with whom the child was living at the 12 year level reflects the marital situation. Table 37 displays these data. More than half (58%) of the children of adolescents were in single parent families headed by the mother, compared with 37% of the children of older women and 6.5% of

children of adolescents were in the care of other relatives as compared with only 1.6% of the children of older mothers. Overall, less than 1% were living in a foster home. In considering the significance of these findings, it must be remembered that 24% of the older women had had their first child as an adolescent which may well have biased the data of the comparison group and the differences between the two groups may, in fact, be greater than it appears.

TABLE 37

Family-Type Person With Whom Child Was Living at Age 12 Years

Family Type	Adolescent Mothers			More Mature Mothers		
	N	Adjusted %	Strict %	N	Adjusted %	Strict %
Mother & Father	27	35.1	35.1	180	56.1	53.7
Mother Only	45	58.4	58.4	125	38.9	37.3
Father Only	-	-	-	8	2.5	2.4
Other Relatives	5	6.5	6.5	5	1.6	1.5
Foster Home	-	-	-	1	.3	.3
Other	-	-	-	2	.6	.6
TOTAL	77	100.0	100.0	321	100.0	-
No Information	-	-	-	14		4.2

Social Participation

Two-thirds of the mothers reported that they attended PTA meetings; the rate of attendance was similar for both groups of mothers. However, with respect to questions about political activities, the rate of participation was sharply reduced, to one in ten overall and the rate for young mothers was only 8%. One might suggest, particularly in light of the high rate of participation in PTA, that these families are striving to meet basic needs and that extra familial activities which demand major time commitments were distractions from the primary effort which could not be undertaken until a more integrated life style could be affected. As was true of the comparisons between families of successful and failing children, presented later in this report, it can be hypothesized that if extensive participation is on the horizon for some of these families it is in the somewhat distant future. Another factor of some importance may be lack of role models. Until relatively recently, survival must have been the primary pre-occupation and a family history of political participation seems unlikely in most inner city families. There was greater participation in various neighborhood activities; the rate of participation almost tripled, for both groups of mothers.

Church attendance, at least on occasion, was a frequent extra household activity, with almost three-fourths participating. There

was a substantial difference between the families of the adolescent mothers and the more mature mothers with respect to frequency of church attendance. Sixty-one percent of the older women reported that they attend church quite frequently, as compared with 44% of the adolescent mothers. Although, perhaps more central to basic values, church attendance does represent an interruption in daily routine. The frequency of response would seem to represent an ordinal position in the value system of importance greater than participation in neighborhood and political events.

In an effort to further document the questions of political and community involvement, the mothers were asked specifically whether they voted in primary and general elections. Although the percentages seem high in comparison with reported results for the City as a whole, substantial differences between the two groups of mothers were identified. Among the more mature mothers, 44% indicated that they usually voted in the primary election as compared with 28% of the young mothers, and 58% vs. 41% respectively, in the general elections. Thus, the older women were more active in the preliminary or primary level than the younger mothers in the later general elections, even though both groups reported higher rates of participation in the latter.

If there is merit in the hypothesis of achieving increasing integration of one's own life over time, then the more mature mothers have had a longer period in which to accomplish this and thus, have achieved to a greater degree. This integration perhaps freed them to become more active in areas beyond the limited confines of the family. A way to answer this question would be to examine this variable for those mothers in the comparison group who experienced their first pregnancy as an adolescent. One might expect that, while there is considerable heterogeneity among both comparison groups, the women in the control group who had one or more pregnancies as an adolescent will participate less and be different from the women whose first pregnancy was delayed until an older age.

Perception of Self Worth (Self Concept)

One of the more important questions asked of the respondents was their level of satisfaction with life now as compared to when the study child was born twelve years before. The responses indicated a very high rate of optimism. Three-fourths of the total group felt that their present situation was superior. The young mothers were the most positive, with 83% recording this response as compared to 73% of the older mothers. This again could be

attributed to adolescent catapulted to the proverbial treadmill and experienced a constantly worsening situation. For the most part, they didn't permit this to happen. Indeed, only 10% of the respondents of either group felt their life situations had grown worse.

The vast majority of the mothers are at least somewhat satisfied with their lives, although the younger mothers registered such approval at a slightly lower rate, and were not at all satisfied, more frequently.

One of the more interesting observations is that the mothers saw the man of the house as being more satisfied with life than they were themselves, particularly in the response category of very satisfied. Whereas slightly less than half (48%) of the women were very satisfied with their life, more than half (55%) saw the men of their homes in this light.

To integrate the two, almost all of the mothers (96%) saw their home life as equal to or better than most, with about one-third who perceived their own life as better. This presents an interesting contrast. The total of these two categories is generally parallel to the total of the response categories of 'very satisfied' and 'somewhat satisfied' to the two previous questions. However, when looking at the superlative description, the individuals seem to be more satisfied with the integrated life of their families than with their

own personal lives. Although this appears to be incongruent on first glance, it may be that a general philosophy of optimism prevails in which the respondent, in general, attributes a greater degree of happiness and integration to others in the absence of more specific information to the contrary.

Perception of Children

The respondents were asked a number of questions about their children. This information provides an interesting perspective to compare with the data collected from the children themselves. On the whole, the mothers had an inflated, positive image of their children's performance. When asked 'how well the child gets along in school in terms of grades,' the majority of mothers said 'average.' One-fourth of the mothers, however, thought their child's academic performance was 'above average.' The younger mothers felt this to be the case in 32% of their children, while only 21% of the more mature mothers felt their child's performance was superior. About 20% of both groups saw their children performing below average. If the above average and average categories are taken together, 81% of the mothers are accounted for. Basically, then these mothers felt that their children were doing 'alright.' In reality, however, two-thirds of these children are performing below grade

level academically, while only 10% are above average (note section on Psychological Test Results, page 28).

It is interesting to note that when asked about behavior, more young than mature mothers saw their child as being 'above average' but this was true of the 'below average' category as well. For the total population, 28% saw their child as 'above average' behaviorally, while 60% felt their child was average. Only 12% felt their child to be 'below average' on this dimension. This percentage is elevated to 17% for the young mothers and falls to 10.7% for the older population.

When asked how well their child gets along with others, the young mothers have a most optimistic impression of their children's interpersonal skills. The majority, albeit slight, (51%) saw their children as being above average. This compares favorably to the more mature mother's response of 31% and the overall mean of 35%. Indeed, 10% of the older mothers saw their children's relation with others as below average while only 5% of the younger respondents had this perception. The remainder, and thus the overall majority, saw the child's interaction processes as being average.

In each of the three variables which dealt with the child's performance, the offspring of the young mothers were seen, in greater proportion, to be well above average. However, the variances observed were relatively small. Two points are worth

noting here. The young mothers seem to be more optimistic about their offspring, which is in itself significant. It could be, however, that this perception is reflective of a defense mechanism to protect their own act of having a child while they were still children themselves. However, this point of view seems unlikely in view of the high frequency of adolescent pregnancy in this population and its apparently high level of general acceptance. Secondly, although the three variables are generally consistent, the variance that is noted points significantly to the danger of treating subgroups as if they are homogeneous. All young mothers did not perceive their children as behaving in the same way, nor identically across the three variables; the older mothers exhibited similar differences in perception.

Finally, the mothers were asked if they had any special concerns about their child. A large proportion (44%) had none, but there was a slight discrepancy in the distribution. A larger percentage of the more mature mothers (46%) as compared to 39% of the young mothers had no concerns. The concerns that were registered by both groups were predominantly described as behavioral, related to health, or achievement, with behavioral concerns representing the modal category for both. The young mothers, however, had almost as much concern for achievement as for health, while health concerns

were a distant second for the more mature mothers. Perhaps the most important observation from the responses to this question is that the majority of mothers do have such concerns.

With respect to future expectations, the mothers were asked how far they wanted to send their children in school. The optimism that has been noted throughout this report is clearly evident in the responses to this question. Fully, 57% of the mothers wanted to send their children to college, while another 5% said 'as far as they want to go' which could presumably include college. In all cases, at least completion of high school was projected. Given that less than one-half of all high school graduates go on to college, and only 70-80% of those who begin first grade graduate from high school, these are very optimistic projections, indeed.

Even more to the point, 94% of the respondents see their chances to meet these aspirations as fair to very good, with almost half falling into the very good category. Many of the women had concrete plans for furthering the education of their children, for example, they were purchasing insurance policies for this purpose.

Summary

In summary then, the environments within which the children were living, while generally typical of the lower-middle and lower socio-economic levels of urban society, appear to show considerable

diversity in a number of important ways which may significantly influence family development and mobility, and which may have provided significant influences upon the social development of the children. The important interactions which may have existed remain to be identified.

The families of adolescent mothers appear, in general, to be considerably disadvantaged in terms of the social welfare variables of education, occupation and income as compared with those of older women. While progress had been made, the initial discrepancies have not been overcome, at least in many instances.

Pre-School Experience

Information, with respect to the pre-school experience of the children, collected at the 7 year age level, was available for 397 of the children studied at the 12 year level. As may be seen in Table 38, only 5% of the children entered first grade without prior experience of some kind. Almost all (92.2%) of children went to kindergarten and 24% attended Head Start. About half of the children (49.6%) had only kindergarten experience, the others had a variety of other experiences in addition.

TABLE 38

Pre-School Experience

(n=397)

	Number	%
No pre-school experience	20	5.0
Kindergarten	366	92.2
Head Start or early admissions	96	24.2
Nursery School or Day Care Center	51	12.8
Bible School or Sunday School	46	11.6
Summer School	7	1.8
Special Pre-Schools for the Handicapped	4	1.0

In view of the frequency of pre-school experience and the fact that all of the children had spent a year in first grade prior to administration of the psychological test battery at age 7 years, lack of familiarity with paper and pencil tasks seems an unlikely explanation by itself for the poor visual-motor performance achieved by these youngsters on the Bender Gestalt Test at age 7 years. Poor performance may be a reflection of the quality of the experience rather than lack of it. It would be of interest to know whether the children (24.2%) who participated in Head Start had any advantage in this respect. Table 39 shows a detailed breakdown of the various pre-school experiences of these children.

TABLE 39

Combinations of Pre-School Experiences

(n=397)

	Number	%
No pre-school experience	20	5.0
Kindergarten only	197	49.6
Kindergarten and Nursery School or Day Care	30	7.6
Kindergarten and Head Start or early admissions	79	19.9
Kindergarten and Head Start and Bible School	2	.5
Kindergarten and Bible School or Sunday School	31	7.8
Kindergarten and Nursery School and Head Start	10	2.5
Kindergarten and Nursery School and Bible School	8	2.0
Kindergarten and Nursery School and Head Start and Bible School	2	.5
Kindergarten and Summer School	7	1.8
Nursery School or Day Care Center only	1	.3
Head Start or early admissions only	3	.8
Bible School or Sunday School only	3	.8
Special Schools	4	1.0

LONG-RANGE OUTCOME OF FIRST ADOLESCENT PREGNANCIES

We turn now to an examination, in somewhat greater detail, of the long-range outcome of adolescent pregnancy. Because of the current, national interest in this problem and the need for objective information for planning purposes, priority was given to this area of investigation. An adolescent pregnancy was defined as a pregnancy in a young woman who was 17 years of age or less at the time of delivery of her infant, in contrast to teenaged pregnancy, which includes young women of 18 and 19 years of age as well. We are concerned here with the long-range outcome for mothers who had liveborn children who survived. The follow-up period of both mother and child extended for 12 years after the birth and ended with a 12 year evaluation. This evaluation included an extensive psycho-social test battery administered individually to each child and a lengthy interview with each mother. These instruments have been described earlier in this report.

To be included in this study the mothers must have been part of the JHCDS and followed since the first prenatal visit. In addition, the children must have been enrolled at birth and followed through childhood with the examinations at 7, 8 and 12 years completed.

Among the 466 children, in the sample selected for the socialization study at 12 years, there were 77 who had been born to adolescent mothers. Of the 77, 65 were first born children. The particularly high medical and social risk of later born children of adolescents has been well documented by Jekel (1973), and Furstenberg (1976), among others. On the basis of this increased risk and because of the small sample size, the 12 later born children were excluded from the present analysis. Therefore, the data for the 65 first born children were studied as the children represented a more homogeneous group.

Because the maternal age group of 20-24 years has generally been regarded as the optimal age for child bearing (British Perinatal Study, 1968), the first born children of the study women in that age group were selected for comparative purposes. However, it has become apparent that the optimal age for child bearing varies with the outcome being considered. In the Collaborative Perinatal Study (Niswander and Gordon, 1972), with respect to the outcome of perinatal mortality, age 18 and 19 years was found to be optimal, while for birthweight it was 25-29 years and in our studies (Lobl and Welcher, 1971), for Binet IQ measured at 4 years, it was age 30-35 years.

In any event, in this study, the first born children of women 20-24 years were selected for comparative purposes. Even though this age group was large in terms of overall numbers, only 31 of the women gave birth for the first time. Among their children, 51.1% were male and 49.9% were female; 28 were black (90%) and only 3 were white. The mean chronological age of the group was 12 years, 3 months at the time of study. Among the children of the younger mothers, 49% were boys and 51% were girls; their mean chronological age was 12 years and one month; 85% were black.

The objectives of the study were, by means of comparison with the supposedly more favorable group, to identify possible differences in outcome for mothers and children which could be related to adolescent motherhood.

Procedures

The procedures used were essentially those of the socialization study; and data collected at intervals throughout the more than 12 years of the JHCDS were assessed.

Results

The results are discussed under several headings, in accord with the general developmental model presented in Figure 1, page 4a.

The results must be regarded as somewhat preliminary. As in other areas, resources were not available for the definitive analyses of interactions between variables which could perhaps have clarified certain relationships. The results, nonetheless, are of considerable interest. There are long-range disadvantages to adolescent pregnancy and, once more, the heterogeneity of groups is clearly evident. Some more competent families manage to overcome their problems and advance their state of general well being; others do not.

Psychological Outcome Measures - Child

Academic Achievement

Academic achievement was measured at the 12 year age level by individual testing with the WRAT and Gray's Oral Reading Test. The distributions of standard scores achieved by both groups of children on the WRAT are shown in Table 40.

Academic achievement for these largely black, urban children was found to be considerably depressed at the 12 year age level. The mean scores and standard deviations for both the children of adolescent and mature women were not greatly different, with those of the adolescent group slightly below the controls in reading and spelling. However, examination of the distributions of raw

TABLE 40

Comparison of Performance on the WRAT by Children of Adolescent and Mature Mothers, at age 12 Years

Standard Score Classification	WIDE RANGE ACHIEVEMENT TEST											
	READING (word recognition)				SPELLING				ARITHMETIC			
	Study Group		Comparison		Study Group		Comparison		Study Group		Comparison	
	N	%	N	%	N	%	N	%	N	%	N	%
Superior	2	3.1	2	7.1	3	4.6	0	0	0	0	0	0
Above Average (110-119)	7	10.8	3	10.7	1	1.5	2	7.1	0	0	0	0
Average (90-109)	23	35.4	10	35.7	21	32.3	12	42.9	17	26.2	3	10.7
Dull Normal (80-89)	11	16.9	5	17.9	21	32.3	6	21.4	26	40.0	12	42.9
Borderline (70-79)	13	20.0	5	17.9	17	26.2	6	21.4	19	29.2	10	35.7
Deficit	9	13.9	3	10.7	2	3.1	2	7.1	3	4.6	3	10.7
NS	65		28		65		28		65		28	
MEAN	89.49		91.57		85.71		88.64		82.08		80.28	
SD	17.52		17.01		18.14		13.47		9.84		10.26	

scores obtained on the WRAT Reading and Spelling tests and the grade level equivalent obtained on the Gray Oral Reading test showed that the performance of the children born to adolescents was generally lower than that of the children of older mothers. As may be seen in Table 41, a larger proportion of the children of adolescents than of older mothers obtained below average scores, except in the WRAT Reading test.

TABLE 41

Proportions of Children of Adolescents and Older Mothers Giving Below Average Performance in Spelling and Reading at Age 12 Years

Tests	Children of Adolescents	Children of Older Mothers
% below 90		
WRAT Spelling	62	50
WRAT Reading	51	53
% 5th grade or below		
Gray Oral Reading	85	64

The distribution of scores exhibit a high degree of consistency in that they are well below national norms. It is sad to note that no child in either group obtained an 'above average' score in arithmetic.

'Above average' scores were received in reading (word recognition) and spelling. The children, in general, show greater strength in these subjects.

The Gray Oral Reading Test was administered as a measure of oral reading in context. Though on the basis of age the children should be in 6th or 7th grade. The mean grade level equivalent obtained by the children of adolescents was 3.81 (SD: 2.24) and by the children of mature mothers was 4.77 (SD: 2.61). This difference did not approach statistical significance (t 1.78). As indicated, 85% of the children of young mothers and 64% of those of older mothers were below average in performance. The range of oral reading skills was from the 1st grade to the 12th grade for the children of mature mothers, while the 10th grade level was the ceiling for the children of adolescents. The wide range in both groups suggests considerable heterogeneity among the children.

In general, and rather surprisingly, the comparisons pertaining to academic achievement failed to show statistically significant differences between the children of mature and adolescent mothers. Trends were seen which suggested more inadequate performance for the children of adolescent mothers but performance of both groups was depressed. A comparison of academic achievement on

the WRAT administered at the 7 year level was made for the children (n=668) of all adolescents and those of women 20-24 years (n=1135) in the total JHCDS population. It showed that the children of adolescents had significantly poorer performance ($p < .001$). This comparison, however, was not controlled on parity of mother and thus, no allowance was made for the effect of the poorer outcome of repeated pregnancy in the adolescent. (There were 110 second or third pregnancies in the group of 668).

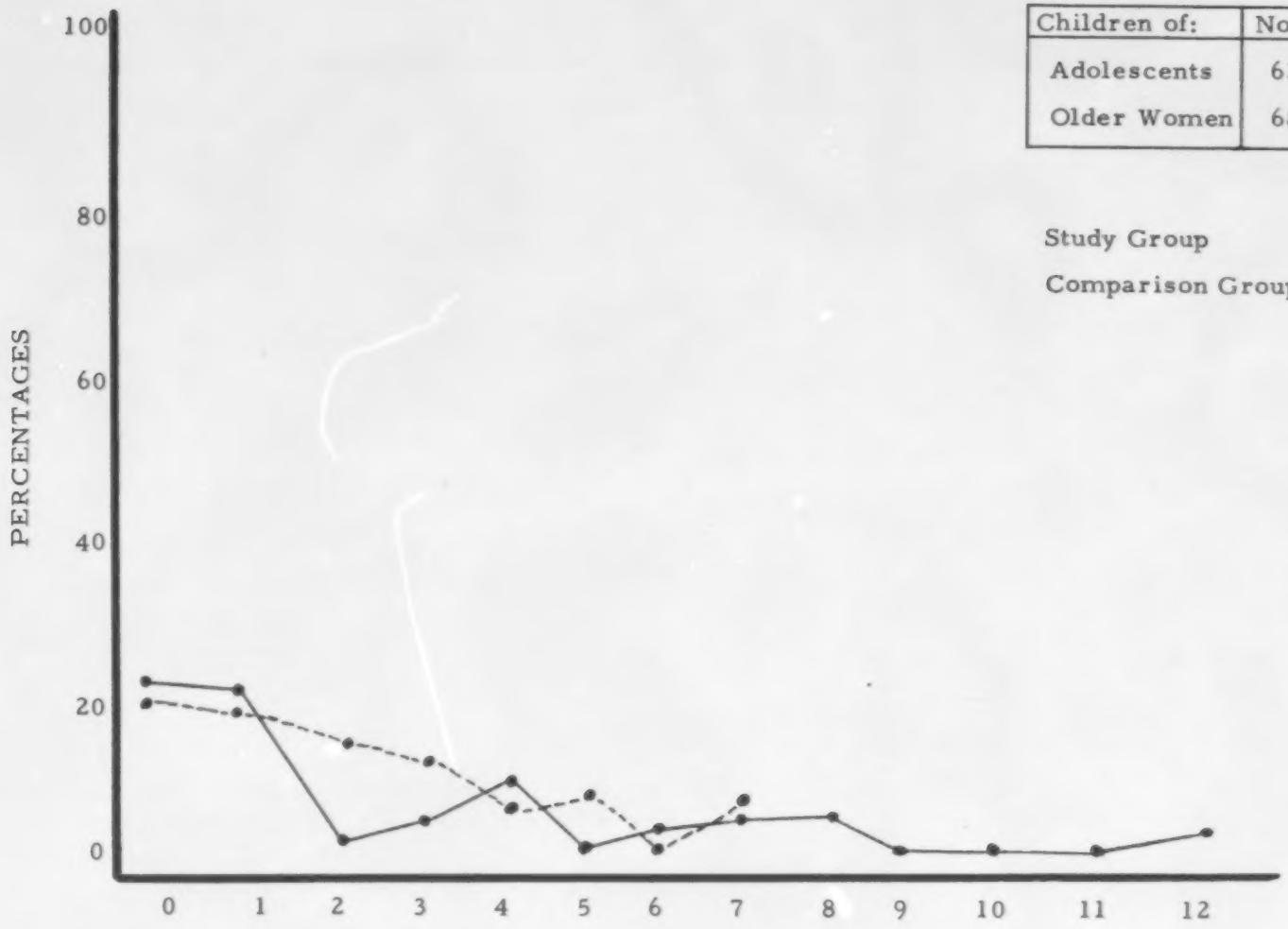
Perceptual Motor Function

The Bender-Gestalt Test was used to measure perceptual motor functions, as it had been at ages 7 and 8 years.

The data reveal a high degree of consistency in performance between the two groups. Figure 10 shows the frequency distributions and the classificational percentages of Bender Error Scores. The children of the adolescent mothers obtained a mean error score of 2.31 (SD: 2.59) while those of the mature mothers received a mean score of 1.86 (SD: 1.82). The lower score is more favorable but the difference between the means of the groups is marginal. The distributions, however, do suggest a higher proportion of children of adolescents in the 'tail' of high error scores. Most children in both groups received a normal rating, indicative of normal perceptual

FIGURE 10: Comparison of Bender Error Scores Between 12 Year Old Children of Adolescents and Women 20 - 24 Years of Age

Children of:	Normal	Suspect	Abn.
Adolescents	62.7	22.3	15.0
Older Women	68.9	20.7	10.3



motor development. In the total JHCDS comparison referred to above, a difference between the children born to adolescents and those of more mature women was significant at the $p < .001$ level.

Self Concept

The Piers Harris and the Coopersmith inventories for the assessment of self concept at age 12 were used. Both groups of children displayed adequate perception of self. A high percentage of children (80-90%) in both groups received average or above average ratings in this area. These data are of particular interest because they indicate a generally high perception of self relating to the establishment of a positive self image. Richardson, Hardy and Dallas* noted a considerable degree of alienation in adolescent mothers at the time that their children were 8 years old, during their study of knowledge and attitudes toward family planning and population control. In the present comparison there was little difference between the 12 year old children of adolescents and mature women.

Behavioral Ratings and Overall Impression

Within both groups, 87% of the children received normal behavioral ratings. The remaining 13% of the children received a

*unpublished data

suspect rating based on considerations of deviant behavior including negativism, a lack of self confidence, distractibility, over-activity, and the like. None of the children were considered to exhibit frankly abnormal behavior.

An overall rating on performance was assigned to each child based on cumulative scores on outcome measures and the classical assessment of behavior. Inadequate ratings on three specific measures yielded an automatic abnormal rating. The ratings for both groups are shown in Table 42.

TABLE 42

Overall Impression on Psychological Battery at the 12 Year Level for the Children of Adolescent and Mature Mothers

Rating	Children of Adolescents		Children of Mature Mothers	
	N	%	N	%
Normal	36	55.4	17	54.8
Suspect	27	41.5	14	45.2
Abnormal	2	3.1	0	0.0
TOTAL	65	100.0	31	100.0

The data again show consistent findings between the two groups.

In considering the meaning of these data, it must be remembered that test results have been interpreted on the basis of national norms and that, while these children are in fact often measured against these norms, they may be in some respects inappropriate and discriminatory measures because they are, to a large extent, based upon white middle class language and experience (Hardy, Mellits, Welcher and Kagan, 1976). Thus, the outlook for these children is probably more positive than the test results might indicate.

While there were indications in the data that the 12 year old, first born children of adolescents performed overall less well than comparable children of women in a supposedly more favorable age group, the differences between the two groups were small. The expected large discrepancies were not seen. The results are, in general, quite similar to those obtained when the adolescent group was compared with the remainder of the 12 year study population. (see pages 48 to 56).

The Family Environment

In order to develop a picture of the social environments in which the adolescents and their children were developing, the family characteristics of the young mothers and the primiparous mothers of 20-24 years of age were compared along a number of dimensions.

Maternal Age at Delivery

Table 43 shows the distribution of the mother's age at the time the child was born. The youngest mothers were 13 years old; there were 4 of them. In the age group 20-24 years there were 31 primiparous women.

TABLE 43

Maternal Age at Delivery

Year of Age	Number
13	4
14	17
15	16
16	14
17	14
TOTAL:	65
20-24	31

Marital Status

At the time of registration for prenatal care, 83% of the adolescents were single as compared with 32.3% of the older mothers (see Table 44). Thus, over three times the proportion of older women were married, 61.3% vs. 17%. Twelve years after delivery of the study child, 16.9% of the adolescents were single as compared with 17.2% of the older mothers, but by this time only 30.8% and 48.3%, respectively, were married, but not necessarily to the father of the study child. At the 12 year level, almost 14% of the young mothers were living with a man to whom they were not married, while none of the older mothers had adopted this life style. Table 44 also shows the marital status for each group at three points in time and permits a general tracking of the rates of change.

Table 45 provides data addressing the actual frequency of change from one category to another. In this respect, there was a sharp difference between the two groups of mothers, with 39% of the adolescents experiencing three or more changes in status over the 12 year period, while only 1 (3.6%) of the older mothers experienced more than two changes. Thirty-nine percent of the older women experienced no change in status, as compared with only 18.8% of the younger.

TABLE 44

Marital Status Over the 12 Year Period

STATUS	ADOLESCENT MOTHERS			MOTHER 20 - 24 YEARS		
	Registration %	7 years %	12 years %	Registration %	7 years %	12 years %
Married	16.9	33.3	30.8	61.3	65.5	48.3
Married/Divorced/ Remarried		1.6	6.2			
Separated		27.0	21.6	6.5	17.2	10.3
Widowed		1.6	3.1			3.4
Divorced		6.3	7.7		3.4	20.7
Living with a Man		1.6	13.8			
Single	83.1	28.6	16.9	32.3	13.8	17.2

TABLE 45

Number of Changes in Marital Status Over the 12 Year Period

Number of Changes	Adolescent Mothers %	Mothers 20-24 Years %
None	18.8	39.3
1	26.6	32.1
2	17.2	25.0
3	18.6	3.6
4	17.2	.0
5	.0	.0
6	1.6	.0
3 or more	37.6	3.6

It is clear then, that the older women were able to establish and maintain more stable marriages, and presumably home situations in which to raise their children, than the younger women who gave birth during adolescence. Thus, if family stability is an important influence for adequate child development and socialization, the children of adolescents were, in general, in less stable situations. It would be of interest to know how many of the adolescents, particularly the younger ones, were members of an extended family but this information, while available in individual records, was not available in computer storage.

Education

Examinations of educational attainment, at three points during the 12 year period, also showed considerable differences between the two groups of primiparous mothers. As expected, (Table 46), none of the adolescents had completed high school at the birth of their child, while 64.0% of the 20-24 year old mothers had graduated. Even the latter figure is low, reflecting the overall high rate of school drop-outs in this inner city population. However, an additional 13% of these older women did complete high school in the ensuing seven years, for a total of 77% by the time the child reached 7 years of age. An additional five years brought no further improvement in this rate. The adolescent mothers also increased their educational attainment, but at a different rate.

TABLE 46

Maternal Educational Attainment Over the 12 Year Period

Completion of 12th grade or above	At Prenatal Registration %	At 7 Years After Delivery %	At 12 Years After Delivery %
Adolescent Mothers	0	24.3	35.3
20-24 Year Old Mothers	64.0	77.0	77.0

Within 7 years, 24.3% of them had finished high school. This represents a higher rate of continued education, but a rate of completion only one-third that of the older women, although they were younger and had farther to go than the older women. In the five year period, between the 7 and 12 year follow-up points, the younger mothers continued to increase their high school completion rate by an additional 11%, to a total of 35%. On an age basis, one might reasonably compare the attainment of the older women at the 7 year follow-up level with that of the adolescents at the 12 year level, providing a correction factor of five years. Even on this basis, more than twice as many of the older women (77%) completed high school as compared with the women who were still adolescents at delivery (35%).

Table 47 shows the distribution of actual educational attainment in terms of the highest grade completed, at the three points in time. The differences between the two groups are substantial and the young mothers are undoubtedly at a serious disadvantage with respect to limitation of choices and employment opportunities, and perhaps also with respect to the quality of life and ability to nurture their children, as education clearly affects these attributes.

TABLE 47

Distributions of Actual Educational Levels Attained Over the 12 Year Period for Adolescent and Older Mothers

Highest Grade Completed	ADOLESCENT MOTHERS Registration %	7 Years %	12 Years %	OLDER MOTHERS Registration %	7 Years %	12 Years %
≤ 6 Grade	14.5	1.4	1.4			
7	13.2	12.9	8.5			
8	30.3	14.3	14.3	4.5	4.5	4.5
9	17.1	22.9	18.3			
10	17.1	15.7	4.2	18.2	9.5	9.5
11	7.9	8.6	23.9	9.1	4.8	9.1
12		22.9		54.5	66.7	63.6
13			7.0	4.5		
14		1.4	4.2	4.5	4.5	4.5
15				4.5		
16					9.5	4.5
17						
18						4.5

Socio-Economic Status

Data in this area were examined in several ways and comparisons drawn between the status of the young and older primiparous mothers.

In the JHCDS, a socio-economic index, developed by Myrianthropolus and French (1968), referred to as the PRB Index, was computed. The mean value for the JHCDS families, at the time of registration for prenatal care, was between 4 and 4.9 on this scale, indicating an average educational level of 10-11 grade, occupation in semi-skilled or service jobs and annual family income between $3,000 and $4,000*. Comparison of this index, in Table 48, between the young and the older mothers shows that most of the former group were below the mean value of 4 on this index of socio-economic status, while the great majority of the older mothers were above 4. The differences between the two groups and the disadvantage of the younger mothers at the time of the child's birth are clearly evident. Comparisons between the two groups with respect to source of income, occupation and education at the 7 and 12 year follow-up levels indicate that the disadvantage persists throughout the 12 year period.

*Between 1959 - 1965, when the babies were born.

TABLE 48

PRB Index at Registration

Index	Adolescent Mothers %	Older Mothers %
≤ 4	79.1	13.6
> 4	19.9	86.4

Employment

Examination of the number of years of employment since the birth of the first baby shows the younger mothers to be less well off, if keeping steady employment is to be regarded as an advantage. Table 49 shows the distribution of years of employment in the two groups. Five percent of the adolescent mothers and 10.7% of the older mothers did not work at all. Among the adolescents 56.7% had worked for less than five years during the 12 year period, as compared with 14.3% of the older mothers; among the adolescents only 10% had worked for 10 years or more as compared with 46.4% of the older mothers. Almost 29% of the older women had worked throughout the 12 year period, as compared with only 3.3% of the adolescents. One has to recognize that young maternal age weighs against employment during the teenaged period. On this basis, it

might be more reasonable to compare the adolescent with the older women by examining the proportion who had worked 7 years or more during the 12 year period; 25% of the adolescents had worked seven years of the 12, as compared with more than twice as many (60.7%) of the older women.

TABLE 49

Years of Mother's Employment Since Birth of First Child

# of Years Employed	Adolescent Mothers (n=72) %	Older Mothers (n=28) %
Did not work	5.0	10.7
< 1 year	8.3	
1	15.0	
2	6.7	3.6
3	11.7	7.1
4	10.0	3.6
5	11.7	10.7
6	6.7	3.6
7	3.3	10.7
8	5.0	3.6
9	6.7	
10	5.0	10.7
11	1.7	7.1
12	3.3	28.6
< 5 years	51.7	14.3
≥10 years	10.0	46.4

At the 12 year level, among 75 of the total group of adolescent mothers followed, for whom information was available, 65.3% were working; 44 (58.7%) were employed full-time and an additional 5 (6.7%) were working part-time. Employment was, for the most part, in service and clerical jobs. Twenty-six (34.7%) of the young mothers were not employed.

Income

As reported earlier in this report (p. 114), at the time of the 12 year follow-up, 36% of the adolescents reported their total family income to be less than $5,000, as compared with 19.4% of the women who had been in their early 20's at delivery of their first child. Among the younger mothers, 36% reported an income greater than $10,000, as compared with 48.4% of the older women.

Some interesting differences between the groups can be seen in the source of income. Table 50 shows the source of the family income at the time of the 7 and 12 year follow-up interviews.

At each time period, only 44% of the primiparous 65 adolescent mothers were not dependent, in whole or part, on public support. Over the five year period, between the 7 and 12 year follow-up evaluations, there was some improvement as the proportion requiring total support was reduced in half, from one-third of the young mothers

to 16%. However, even this significant decrease still left twice (16%) the proportion of young mothers as older mothers (7%) totally dependent on public funds.

TABLE 50

Source of Family Income

Time Period	Earned Income (or social security) %	Earned Income & Social Services %	Social Services Only %
7 Year Level			
Adolescents	44.8	22.4	32.8
Older Mothers	66.7	16.7	16.7
12 Year Level			
Adolescents	44.4	39.7	16.0
Older Mothers	71.4	21.4	7.2

The source of support for the families of adolescents was examined in further detail. Over the study period, there were 45 (58.4%) of the total group of 77 adolescent mothers who reported receiving support, for themselves and/or their children, from the Department of Social Services. Thirty-one (40.2%) received monetary support at the 7 year level, 32 (41.5%) at the 12 year level and 20 (26%) at both times. The average income reported

from Social Services at the 7 year level was $2,147 per year and at the 12 year level, the average was $2,919 on an annual basis. In addition, most families received food stamps and medical assistance. The average length of employment over the 12 year period for the 45 young mothers receiving social assistance was 29.5 months with a median of 28 months, out of a possible 144 months. This means that these young mothers were, as a group, unemployed just over 80% of the time during the 12 year period.

Fertility

Early repeated pregnancy is reported to be a serious risk for adolescents who have had one pregnancy. Figures recently released by the Administration report a 40% recidivist rate within one year of the first delivery where preventive services are not available, and 70% within two years*. Even when contraceptives are available, data from the national probability sample of Kantner and Zelnic suggest that 25% will become pregnant within one year.

It is to be emphasized that the JHCDS was not an intervention study. Family planning services were available in Baltimore, however. The girls described here delivered their babies in 1963-64 before the long-range risks of adolescent pregnancy were generally recognized.

*Testimony of Secretary of DHEW Califano at hearing on Bill 2910 before Senate Committee on Human Resources, June 14, 1978.

The fertility of the mothers during the 12 year period following the birth of their first child was examined in terms of: (a) the number of subsequent liveborn children; (b) the interval between the birth of the first and second child; and (c) the number of fetal losses. The data support the high risks described.

Number of Pregnancies

Among the 61 primiparous adolescents, for whom information is available, there were 137 subsequent live births, giving a total of 198 children, an average of 3.25 children per mother in the 12 year period. The older mothers of 20-24 years, by comparison, had a total of 73 children, an average of 2.6 per mother. As the older mothers are, on the average, about seven years closer to the end of the child bearing period than the younger ones, the difference in fertility as expressed by the average number of children in each group may continue to increase.

Among the older mothers, 14% had no additional children during the 12 year period, as compared with only 3% of the adolescent mothers. On the other hand, 45.9% of the adolescents had 3 children or more as compared with 21.4% of the older mothers. Thus, the adolescents experienced greater fertility in terms of liveborn children than the older mothers.

Interval Between First and Second Pregnancies

Information as to the date of delivery of the second pregnancy was available for 60 of the 65 adolescents and for all 31 of the older mothers having their first child between the ages of 20-24. Among the adolescents, 3% and among the older mothers, 14% had no additional pregnancies after the first born. Table 51 shows the intervals between the first birth and (a) the second live born child and (b) fetal loss. Among the adolescents, 40% delivered the second live born child within one year of the first and 6.7% suffered a fetal loss (perinatal death) for a total of almost 47% experiencing a subsequent pregnancy within one year. By comparison, 22% of the older mothers had a second child within one year and 6.5% had a fetal loss for a total of 28.5% with a repeated pregnancy within the year. It may be conjectured that the adolescent pregnancies were, for the most part, unplanned and unwanted while the older women were building their families. An additional 17% of the adolescents had a child within the second year, and 13% within the 3rd year after the birth of their first infant. Thus, 70% of the young mothers had a second child within 3 years of the first as compared with 48% of the older women. During the 3 year period 11.7% of the young mothers reported fetal losses as compared with 6.5% of the older women.

TABLE 51

Interval from Index Pregnancy to Subsequent Pregnancy

Interval	Adolescent Mothers		Older Mothers	
	Live born %	Fetal loss %	Live born %	Fetal loss %
No subsequent pregs.	3.3	-	12.9	-
1 year	40.0	6.7	22.6	6.5
2 years	16.7	3.3	22.6	-
3 years	13.3	1.7	3.2	-
4 years	1.7	-	-	3.2
5 years	8.3	-	9.7	-
6 years	-	1.7	3.2	3.2
7 years	-	1.7	-	-
8 years	-	-	6.5	-
9 years	-	-	3.2	-
10 years	1.7	-	3.2	-
5 years or more	13.4		29.0	
Dont' know	8.3		-	

Fetal Losses

During the 12 year follow-up period, 28 of the 61 primiparous young mothers for whom information is available reported one or more perinatal loss (abortion, stillbirth, or neonatal death). Among the 28 (45.9%) mothers there were 41 pregnancies resulting in perinatal loss, while among the older mothers 8 (25%) reported a perinatal loss.

Among the young mothers, 19 had one fetal loss, 5 had two and 4 had 3 losses. Among the 8 older women experiencing fetal loss, one woman sustained two losses. Much of the data reported here was collected before abortion was legalized and in this population, as elective abortion was not, for the most part, favored by these women, it has not contributed in any significant way to the high perinatal losses sustained.

Summary and Discussion

Our intense interest in the problems of the adolescent mother and her family has been an outgrowth of observations made during the prospective, multidisciplinary and longitudinal investigation of factors affecting child development in an urban population in Baltimore. As the Johns Hopkins Child Development Study progressed, the high risks of complications of pregnancy, perinatal

death and prematurity were documented. The high social risks of the young mother and her children became clear. In a pilot study of 100 consecutively born children who survived to 13 years of age, we found that the majority of school failures were among the children of adolescents. A hereto unpublished study (Welcher and Hardy) of children exhibiting 'fire setting' behavior showed that the majority of mothers of the children were 17 years or below when the child was born. In this study, 15 children setting significant fires prior to the age of 8 years were identified by unsolicited reports of the mother (i.e., in the 'other stress' category), during interviews with 3000 study mothers inquiring about family stress. As a consequence of these fires two deaths occurred and homes were seriously damaged. Among the mothers of these children 9 (60%) were adolescents. There were high frequencies of complications of pregnancy and premature delivery among the mothers and signs of neurological abnormality among the children. An interaction between mild neurological impairment and a chaotic family environment resulting in inadequate behavior control was postulated as the basis for fire setting.

In the studies reported in this section, an effort has been made to control for some of the confounding variables present in earlier work in order to isolate the effect of maternal age insofar as possible.

Only first born children and their families were included and all children were born within a one year time period. While the differences between the two groups of children were not striking, the children of adolescents were at some academic disadvantage and the differences between the two groups of mothers are substantial.

The long-range outcome of a group of adolescents giving birth to their first study child has been compared, along a number of parameters of social well being, with the outcome for a group of primiparous women (20-24 years of age) thought to be in a more optimal age group for successful child bearing.

There is no question that the adolescent mothers in this study were at a serious disadvantage as compared with women in the older age group with respect to a number of important variables strongly influencing the quality of life and one's ability to successfully nurture one's children.

The young mothers experienced a high degree of family instability, in terms of changes in marital status, as 38% experienced three or more changes during the 12 year period while only 3% of the older women experienced more than 3 changes and 39% had no change at all.

While maternal educational attainment improved considerably over the 12 years, with the younger mothers, in general, achieving considerably more education after the birth of their study child, than the older mothers, at the end of the 12 year period the adolescents were still far behind, with only 35% having graduated from high school as compared with 77% of the older mothers. Lower educational attainment was paralleled by lower occupational achievement, lower income and greater welfare dependency. At both the seven and twelve year follow-up levels only 44% of the young mothers and their families were fully self-supporting as contrasted with 66.7% of the older mothers and their families, at the 7 year level and 71.4% at the 12 year level. Over the 12 year period, the average level of social service support in cash for these young mothers and their children was $2,147 at the 7 year level and $2,919 at the 12 year level, meager sums from which to provide the resources for a family with an average of 3.25 children. The employment history showed that, on the average, these young women worked slightly less than 20% of the time during the 12 year period, for an average of about 29 months in all.

Increased fertility in terms of both live births and fetal deaths undoubtedly complicated the picture for the young mothers,

resulting in further taxing of already seriously limited resources, even though public funds through medical assistance provided coverage for medical costs.

It seems likely that having responsibility for a child, frequently without the help of a husband or father, particularly when limited in education and material resources, posed a serious burden which put severe limitations on the educational and employment attainments of these young women. These problems were compounded by the birth of additional children soon after the first, further taxing their resources and ability to cope.

It is important to emphasize that these differences between the adolescent mothers and those in an older and more favorable age range are based on grouped data and that considerable diversity in outcome actually existed within both the adolescent and control groups. This diversity within the adolescent group becomes clearly apparent in the next section of this report which deals with some of the characteristics of successful and failing children and their families as there were adolescent mothers in each group.

Finally, current experience with large numbers of pregnant adolescents and their children strongly suggests that intervention designed to prevent or minimize the mix of biological and environ-

mental problems which relate to adverse outcomes can be highly effective. Good prenatal care can reduce risks of perinatal loss, low birth weight and central nervous system injury. Birth control services, supplies and education can reduce early repeat pregnancy (in our present program to 5% within 12, and 11% within 18 months) and information about parenting and child development can improve parenting skills and a large proportion of the adolescents (87%) currently) can be helped to secure return to school or placement in a workstudy program providing skills leading to increased employment opportunities.

Furthermore, present ongoing research, sponsored by OCD, indicates that adolescents have, in general, little accurate information about reproduction, contraception, child development and parenting, While difficult to measure, the interventions to supply needed information have a 'ripple effect' extending beyond the adolescent served, providing primary prevention for her siblings and friends, who like herself are vulnerable to adolescent pregnancy and its consequences.

PERSONAL AND FAMILY CHARACTERISTICS OF ACADEMICALLY SUCCESSFUL AND FAILING 12 YEAR OLD CHILDREN

Introduction

The question 'Why does one child succeed while the seemingly similar child next door fails?' is a provocative one; one which we have often pondered as we have followed the study families over the years. This section of the report describes an extensive, though somewhat superficial, investigation designed to provide some insight into ecological differences which may account for the observed differences in performance of 12 year old children.

According to Webster, ecology is that branch of biology which deals with interactions between an organism and its environment. Thus, we are perforce concerned with both biological and socio-environmental factors.

Procedures

For the purposes of the analyses reported here, the major outcome variables were academic success and academic failure. The 25 children obtaining the highest scores on the Wide Range Achievement Test (WRAT) were included in the success group.

The failure group included 25 ostensibly normal children, i.e., without recognized neurological or intellectual deficits, who were selected from among the 90 whose WRAT performance was inadequate on the basis that all subtest scores were between 70 and 79 (exceptions were 2 children who had one subtest score below 70). These 25 children were selected in such a way that the maternal interviews were evenly distributed through the data collection period (Table 52). There were 23 children who performed even more poorly on the WRAT subtests (i.e., one or more scores below 70) or were incapable of taking the tests. Almost certainly, examination of their records would have yielded a higher proportion of adverse biological factors in their developmental background. These children were excluded in an effort to permit examination of socio-environmental factors in relative isolation from biological influences. As this section unfolds it becomes clear that this was not possible; the role of biological factors could not be completely eliminated.

The procedures employed with respect to data collection and analysis were those already described. The longitudinal data, examined to develop profiles of the children in each group, included items which described the child, his mother and family at various points in time from the prenatal period through the child's 12th

TABLE 52

Criteria for Selection of Successful and Failing Children

SUCCESSFUL CHILDREN		Total Pool: 48		
(1)	Chronological Age	11-7 to 12-11 years		
(2)	Grade Placement	6.6 to 7.9		
(3)	WRAT Standard Scores		F	M
	Spelling Reading Arithmetic	≥111 in one or more areas*	5	3
		≥100 to ≤ 110 in two or more areas*	4	3
		90 level functioning in 3 areas**	5	5
		Total sample: 25		

* represent all available children meeting criteria

**represents random selection of 10 of 33 available children meeting group criteria.

FAILING CHILDREN		Total Pool: 79		
(1)	Chronological Age	11-7 to 12-11 years		
(2)	Grade Placement	N/A		
(3)	WRAT Standard Score		F	M
	Spelling Reading Arithmetic	≥70 to ≤80 in all 3 areas	13	10
	Spelling	70 - 80		
	Reading	68		1
	Arithmetic	69		1
		Total sample: 25		

birthday. The independent variables included many biological and socio-environmental factors. For the most part, the analyses have been descriptive and limited to single item comparisons. The results are regarded as but the first step in understanding circumstances which may have been determinants of later performance of the children in the two groups.

The data are presented as follows:

(1) The distributions of outcome variables of academic success and failure are discussed in relation to other psychological data, both concurrent and antecedent;

(2) Biological variables and their possible relationships with outcome are presented and discussed;

(3) Socio-environmental data are examined in the context of the Social Well Being model in relation to successful or failing outcome.

Psychological Outcome at 12 Years

As indicated, the 25 children obtaining the highest achievement scores on the WRAT subtests of spelling, reading and arithmetic were included in the success group; 25 children obtaining scores

between 70-80, on each subtests, (two exceptions) were selected as described and designated the failure group.

The frequency distributions of a number of variables examined are presented in the following tables: actual grade placement in school (Table 53); WRAT subtest scores (Table 54); Gray Oral Reading Test (Table 55); Bender Gestalt Error Scores (Table 56); and, the self-concept scores obtained on the Coopersmith and Piers Harris Tests (Table 57).

TABLE 53

Actual Grade Placement at 12 Years (n=50)

Grade	Success	Failure
8.0	18	10
7.0 - 7.9	7	14
6.0 - 6.9		1
5.0 - 5.9		
4.0 - 4.9		

TABLE 54

Wide Range Achievement Test Results at 12 Years (n=50)

		SPELLING		READING		ARITHMETIC	
		Success	Failure	Success	Failure	Success	Failure
STANDARD SCORES	≥ 130	1		2			
	120-129			2			
	110-119	6		4			
	100-109	10		9		5	
	90- 99	8		8		20	
	80- 89		1		4		3
	70- 79		22		20		20
	60- 69		2		1		2
GRADE LEVELS	13.0-13.9			1			
	12.0-12.9			1			
	11.0-11.9	1		1			
	10.0-10.9	1		1			
	9.0- 9.9	6		2			
	8.0- 8.9	2		7		1	
	7.0- 7.9	7		6		5	
	6.0- 6.9	7		4		18	
	5.0- 5.9	1		2		1	
	4.0- 4.9		8		13		5
	3.0- 3.9		16		11		16
	2.0- 2.9		1		1		4
	1.0- 1.9						

TABLE 55

Gray Oral Reading Test at 12 Years

(n=50)

	Success	Failure
12.0	2	
11.0	4	
10.0	1	
9.0	1	
8.0	1	
7.0	3	
6.0	4	
5.0	5	
4.0	2	
3.0		4
2.0	1	16
1.0		5
N/A	1	

TABLE 56

Bender Gestalt Error Score at 12 Years

(n=50)

Error Scores	Success	Failure
10		1
9		
8		1
7		
6		1
5	2	3
4	2	3
3	1	1
2	3	6
1	6	5
0	11	4

TABLE 57

Scores Obtained on Tests of Self-Concept at 12 Years of Age (n=50)

Score	COOPERSMITH		PIERS HARRIS	
	Success	Failure	Success	Failure
90-100	10	2		
80- 89	7	4		
70- 79	2	3	14	3
60- 69	4	9	6	8
50- 59	2	5	4	7
40- 49		1	1	5
30- 39				1
20- 29		1		1
0- 19				

Table 58 shows the mean values and SD's, for the two groups of children, with respect to the variables mentioned above and to several additional variables which are shown in terms of distributions of normal, suspect and abnormal ratings obtained by the children. The statistical significance levels of the observed differences were not calculated as the average performance of the two groups of children was obviously very different. Examination of these tables provides a clear indication that

TABLE 58

Comparison of Mean Scores Obtained by Successful and Unsuccessful Children on the Psychological Test Battery at 12 Years of Age
(n=50)

TEST	SUCCESS GROUP Mean	SD	FAILURE GROUP Mean	SD
Present Grade	7.22	.31	6.86	.51
WRAT				
Spelling	105.71	11.55	74.60	3.31
Reading	107.70	13.30	76.86	2.96
Arithmetic	96.25	3.52	75.32	3.31
Gray Oral Reading (grade achieved)	7.76	2.95	2.33	.56
DAP				
1st drawing	90.62	17.90	83.92	12.37
2nd drawing	91.20	16.80	82.56	16.08
Self	89.05	13.90	83.61	19.61
Bender Gestalt (error score)	1.41	1.66	2.92	2.80
Self Concept				
Coopersmith	82.16	13.23	67.08	16.58
Piers Harris	66.70	8.69	55.56	13.36
Louisville				
Academic deficit	46.00	4.08	54.54	10.98
Learning disorder	45.47	4.23	53.91	10.84
Hyperactivity	47.38	6.28	57.83	10.52

	% normal	% suspect	% abnormal	% normal	% suspect	% abnormal
RASA (racial attitudes)	87.5	12.5	-	48	28	24
Behavior	100.	-	-	48	52	-
Overall Impression	95.8	4.2	-	24	60	16

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40- 49		1	1	5
30- 39				1
20- 29		1		1
0- 19				

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	SUCCESS GROUP % normal	% suspect	% abnormal	FAILURE GROUP % normal	% suspect	% abnormal
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50- 59	2	5	4	7
40- 49		1	1	5
30- 39				1
20- 29		1		1
0- 19				

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	% normal	% suspect	% abnormal	% normal	% suspect	% abnormal
RASA (racial attitudes)	87.5	12.5	-	48	28	24
Behavior	100.	-	-	48	52	-
Overall Impression	95.8	4.2	-	24	60	16

the successful children, as a group, performed better in all test areas, they had higher levels of self esteem and were rated by the examining psychologist to be normal in behavior and, with the exception of two children, to be considered psychologically normal overall. By contrast, the failing children performed much less well in general, were behind expected grade placement in school more often, had inadequate achievement scores, and had generally lower levels of self esteem and more problems with visual motor perception as measured by the Bender Gestalt Test than the successful children.

It should be noted that the performance of the successful children, reflecting their inner-city background, was not particularly high in comparison with national norms. Of particular note was their average performance on the Louisville Behavior Checklist which was part of the maternal interview. High proportions of both successful and failing children were rated as academically deficient, learning disabled and hyperactive. It is unclear, whether these generally low levels of performance represent: (1) inadequate education in crowded inner-city schools; (2) an increased frequency of inapparent biological deficits, perhaps related to malnutrition, as suggested by Birch and Gussow (1970); (3) inapparent CNS infections, as suggested by Alford (1969) and Hanshaw (1966); (4) test instruments which make use of language and concepts inappropriate for minority group, urban children

as suggested among others, by Hardy, Mellits, Welcher and Kagan (1976); or (5) growing up in an environment characterized by low levels of the resources needed for social well being, i.e., the material and informational resources required for proper nurturing of one's children or perhaps some mix of all five categories.

Prior Psychological Findings

It is of interest to look back over the longitudinal data to see how children in these two groups performed on psychological and other behavioral tests administered at earlier ages. The results are shown in Table 59 and in Figures 11 through 14. Table 59 presents the comparisons in terms of mean values and SD's or percentages in various specific categories; the figures show distribution of IQ scores obtained at 4 and 7 years and Bender error scores obtained at 7 years. Again, tests of statistical significance were not considered necessary as differences between groups, where observed, were, in general, quite marked. The few negative findings require comment.

At eight months of age, when the Bayley Scales of Mental and Motor Development and other tests were administered, no substantive difference between the overall performance of the two groups was

TABLE 59

Comparison of Performance of Successful and Failing 12 Year Old on Prior Tests of Psychological or Educational Function

	SUCCESS GROUP		FAILURE GROUP	
	Mean	SD	Mean	SD
4 YEARS				
Binet IQ	101.54	11.30	90.84	12.58
7 YEARS				
WISC IQ	101.62	8.31	88.88	7.39
Verbal	98.87	9.64	84.52	16.44
Performance	104.12	10.09	88.24	20.32
WRAT				
Spelling	106.45	10.32	90.24	5.36
Reading	106.37	11.97	90.09	5.73
Arithmetic	108.58	5.38	93.44	8.44
Grade Placement	1.81	.20	1.82	
8 YEARS				
Gray Oral Reading	2.43	.54	1.43	.028
WRAT				
Spelling	104.09	10.37	83.63	5.41
Reading	107.99	15.10	84.40	4.84
Arithmetic	99.50	5.77	88.45	7.10
Grade Placement	2.94	.24	2.80	.24
Special educational services (percent)				
none	100.		76.	
reading	-		16.	
other	-		8.	
Overall Rating at prior exams (percent normal)				
8 months	80.9		83.3	
36 months	57.14		26.0	
4 years	100.00		76.0	
7 years	100.00		76.0	

FIGURE 11: Distribution of Binet IQ Scores at age 4 years for Successful and Failing Groups of 12 year old children (n=50)

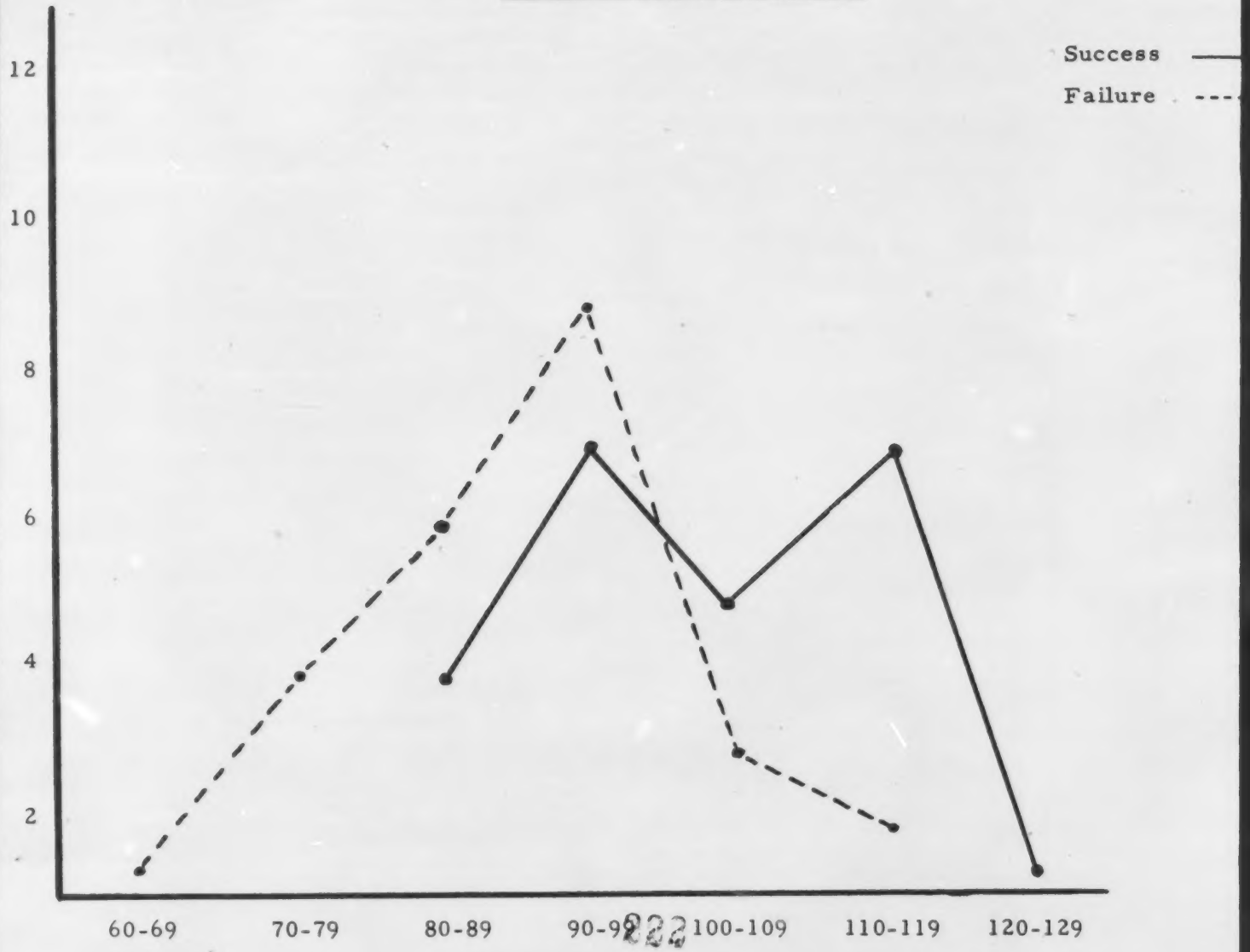


FIGURE 12: Distribution of WISC Full Scale IQ Scores at age 7 years for Successful and Failing Children aged 12 years (n=50)

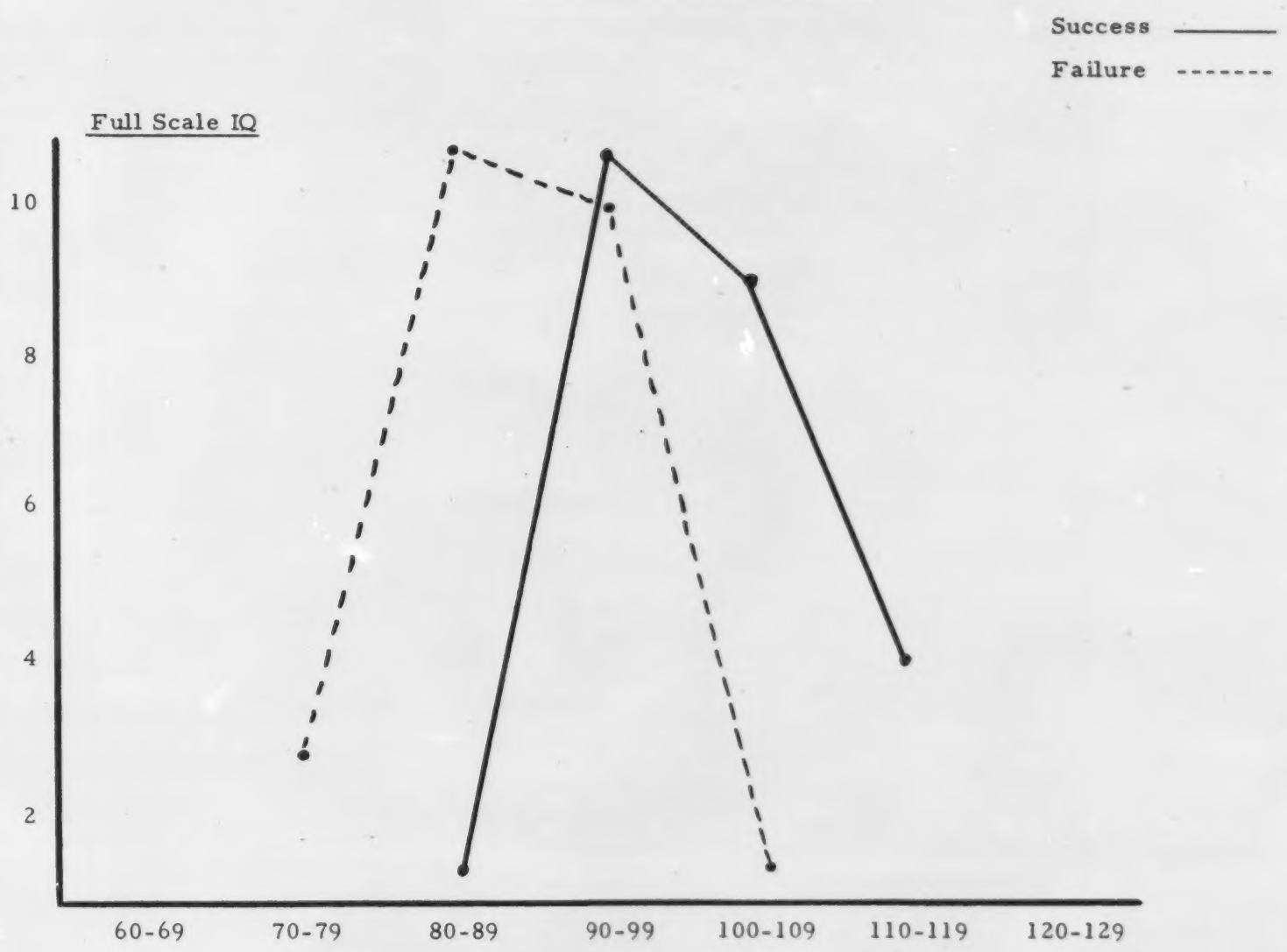


FIGURE 13: Distributions of WISC Verbal and Performance Scores Obtained at 7 years for Successful and Failing 12 year old children (n=50)

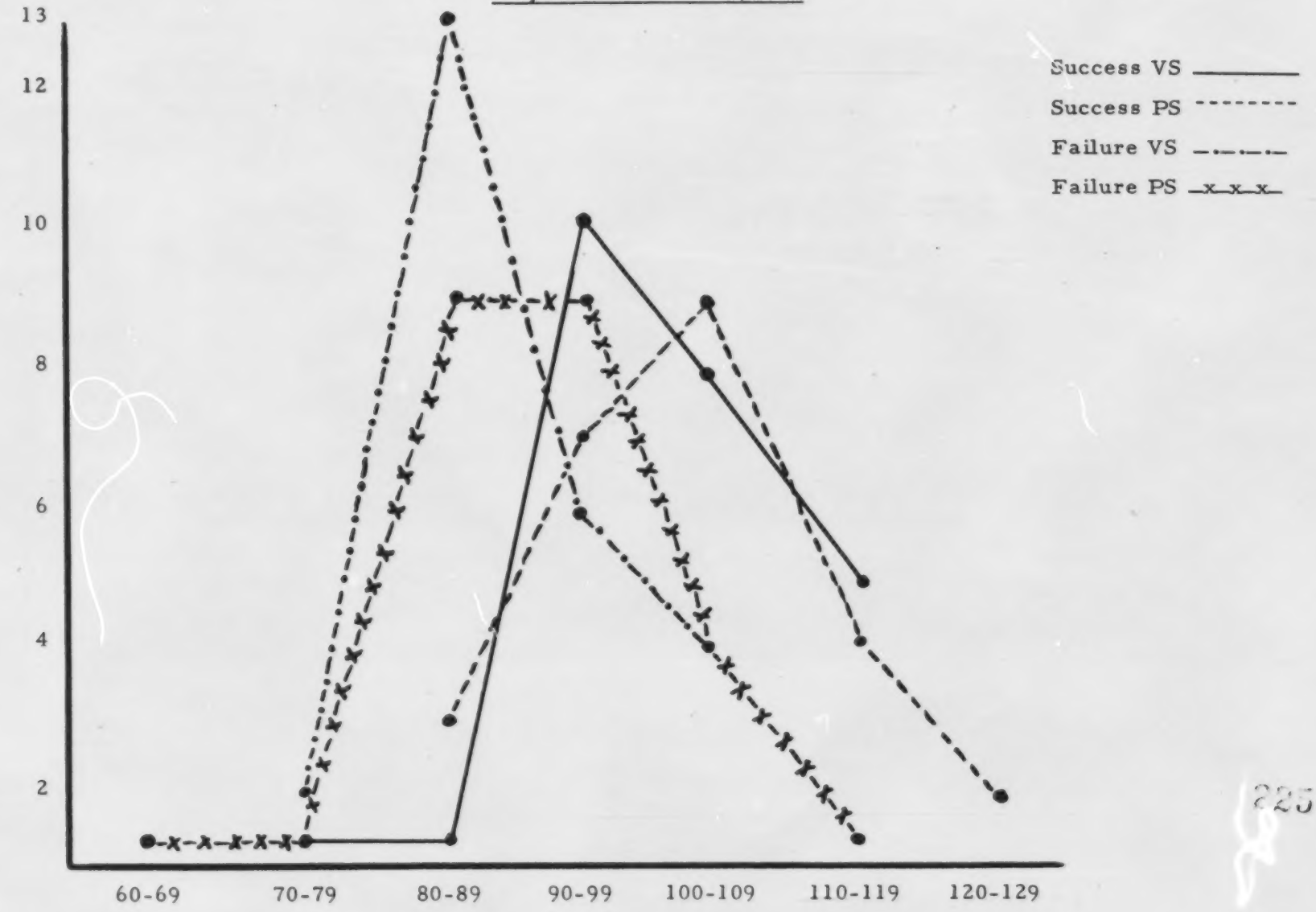
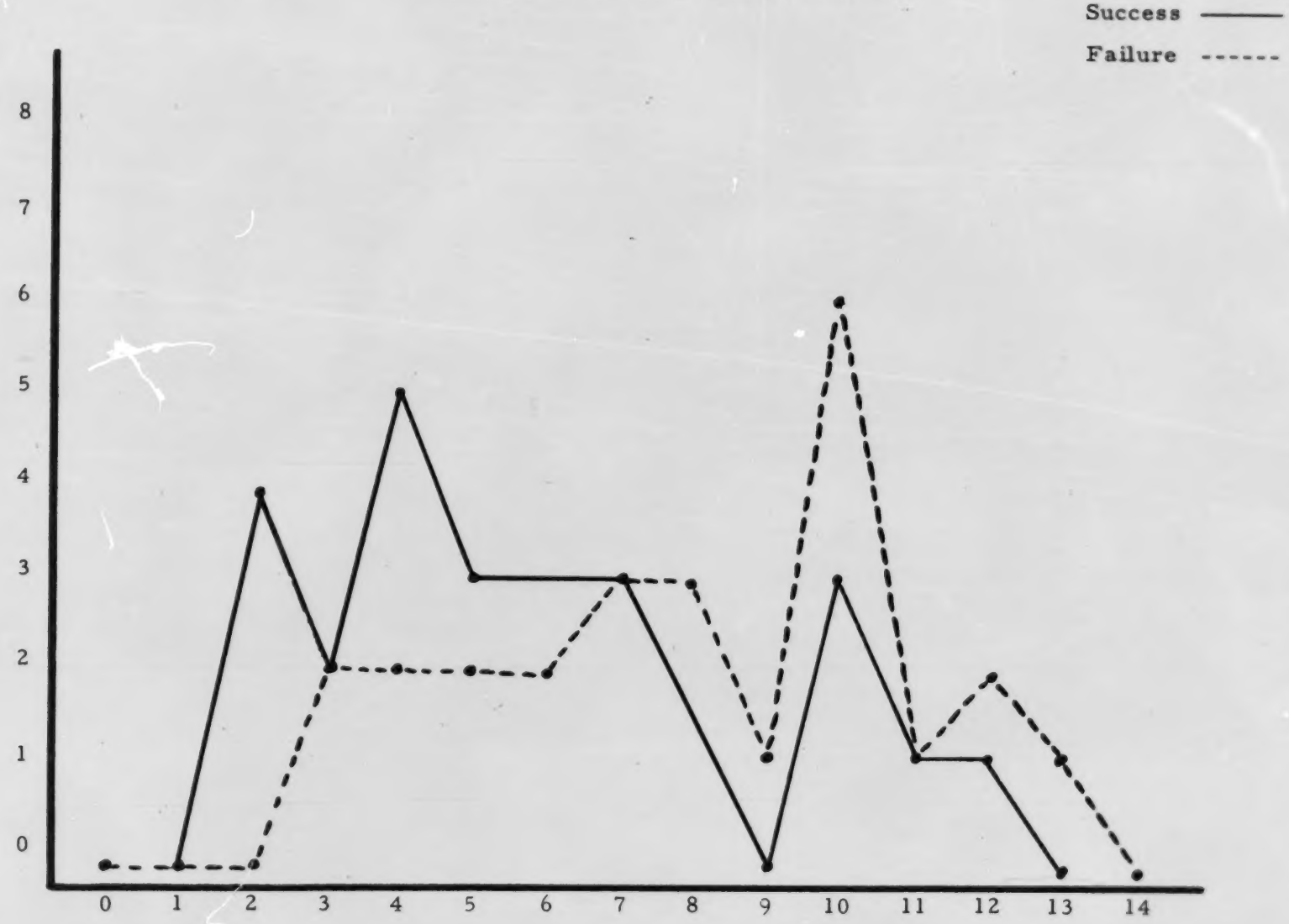


FIGURE 14: Distribution of Bender Gestalt Error Scores at age 7 years for Successful and Failing Children Identified at 12 years of age (n=50)



identified. A slightly higher proportion (83%) of the children subsequently included in the failing group was considered developmentally normal as compared with the successful children (80.9%). From that point on, however, there were very substantial differences. This perhaps reflects the rather marked effect of the environment, in terms of social class, cultural mores and economic background upon the intellectual development of children (and upon the measurement of IQ) - (Drillien, 1968; Birch and Gussow, 1970; Broman, et al, 1975). The data in this study, collected systematically over time, support the prevailing view that both the successful and failing groups of urban children fall progressively farther behind national norms as they increase in age.

It is also of interest, that at 7 and 8 years of age there was little difference in the actual grade placement of the two groups of children. It was only as time went by that some difference appeared and at the 12 year level (this was only approximately four-tenths of one year), indicating that a somewhat larger proportion of the 'failing' children had repeated a grade between 8 and 12 years of age. One can question the wisdom of so called 'social promotion' which allows a child to keep up with his age mates but fall farther and farther behind in terms of achievement and as a result be handicapped in learning new concepts. The difference in average self concept scores, particularly

the Coopersmith scores ($\bar{x}$ 82.16 for successful children vs. $\bar{x}$ 67.08 for failing children) suggests that the children are aware of their inadequacies. However, we have not yet had the opportunity to examine this relationship.

Another important point, well demonstrated by Figures 10 through 13, was the overlap in the distributions of 4 and 7 year IQ scores and Bender error scores. It seems clear that with respect to intelligence and visual motor perception there is a big middle group of children whose academic performance (at least as measured by the WRAT at 12 years) might go either way. There were children with average or better than average intelligence at ages 4 and 7 years who failed at 12 years and conversely youngsters whose IQ scores were in the 80s and 90s who succeeded at 12 years. Why? Again, there has been no opportunity to examine these inconsistencies. In any event, while intelligence obviously bears a strong relationship to academic achievement, other variables must also play a significant role. We have not singled out the children who seem to have inconsistent behavior for a closer look at relationships with environmental stress. This might prove very rewarding in terms of better understanding.

Another observation which is perhaps of some importance is that there were among the failing children a sizable proportion, at

each examination, who were considered to be functioning behaviorally in a way which did not measure up to the criteria of normalcy. In each instance, excepting at 8 months, the proportion of children considered not to be normal was substantially greater among those who 'failed' at 12 years, and at 4 and 7 years of age all of the successful children were considered normal while one in four of the 'failing' children were not. Again, a more detailed investigation of the 'not normal children' might provide better understanding of ecological relationships.

The results on the three year Language, Hearing and Speech Evaluation require comment. This test battery covers function in all three areas, it was devised for the Collaborative Perinatal Study by a panel of expert consultants. The Johns Hopkins Study children, like the children in the Philadelphia and other urban samples, performed poorly, in general, because of poorly developed language skills as compared with middle class children. Among the successful children being considered in this section only 57% were rated normal and among the failing children only 26%. Thus, large proportions of these children had problems with oral communication as compared with children from less disadvantaged backgrounds. The verbal scores obtained on the WISC (Table 59 and Figure 12) point to the

language problems at 7 and the Gray Oral Reading at 12 (Table 58) indicates the marked disadvantage of the failing children.

BIOLOGICAL INFLUENCES

We turn now to a consideration of some of the biological factors present in the developmental backgrounds of the two groups of children.

Age, Race and Sex of Children

All of the children were very close to their 12th birthday at the final evaluation. There was no significant difference in age between the successful and failing groups. As is the case with the study population, in general, most were black; in the successful group there were 13 black females, 8 black males, 2 white females and 2 white males. In the failing group there were 12 black females, 11 black males, 1 white female and 1 white male. Sex of child does not appear in these small samples to be a very important variable; there is a slightly higher proportion of females among the successful children.

Parental Age at Delivery

Examination of this variable produced some surprises. The results are shown in Table 60. Because of the recognized association between adolescent pregnancy and adverse outcome both in these data

and those of others (Eleven Million Teenagers, 1976), we were surprised to find that 7 mothers of successful and 6 of unsuccessful children were adolescents less than 18 years of age at delivery. Similar findings existed with respect to age of father.

TABLE 60

Distribution of Maternal Age at Delivery in Groups of Successful and Failing Children Aged 12 Years (n=50)

Mother's Age at Delivery	SUCCESS GRP.		FAILURE GRP.		TOTAL	
	N	%	N	%	N	%
≤ 17	7	28.0	6	24.0	13	26.0
18 - 20	8	32.0	3	12.0	11	22.0
21 - 30	5	20.0	12	48.0	17	34.0
31 - 36	5	20.0	4	16.0	9	18.0

Prenatal Care, Pregnancy Complications

It is of interest to note that the mothers of successful children, in general, registered earlier for prenatal care, 16% in the first trimester as compared with 8% of the mothers of failing children. In keeping with earlier registration, the mothers of successful children also made more prenatal visits, 40% had 11 or more visits as compared with 20% of the mothers whose pregnancies yielded children who

failed. There was a significant difference (twice as many) in frequency of prenatal complications such as bleeding during pregnancy, anemia and toxemia among the mothers whose pregnancies yielded children who failed. However, there was no difference between groups in frequency of complications of labor and delivery.

Neonatal Variables

When the neonates were compared there was a rather striking difference in the rate of prematurity between the two groups. Only one of the 25 successful children weighed less than 2500 grams at birth, while 5 of the failure group were in this category. Five of the failing children weighed in excess of 3500 grams (2 in excess of 4000 grams) at birth as compared with 3 of the children who succeed. The mean birthweights for the two groups was identical, 3002 grams, but the variances were very different, that of the failing group was almost twice that of the success group, suggesting problems at both ends of the weight spectrum. Excessive size at birth can be a problem because of relationships with both maternal disease and birth injury.

There were no differences between the two groups with respect to frequency of low Apgar scores, elevated levels of neonatal bilirubin or neurological abnormalities during the neonatal period.

Physical Measurements

Successful children were generally slightly larger, excepting in birthweight, than children who failed, at each measurement period. The distributions of body weight are shown in Table 61. As might be expected, height, which is a better indicator of growth than weight, showed a greater difference between groups than weight. Distributions of height for the two groups are shown in Table 62.

TABLE 61

Distribution of Body Weight in Pounds at 7 and 12 Years of Age for Academically Successful and Failing Children at 12 Years

Weight in Pounds	SUCCESS GROUP %	FAILURE GROUP
7 YEARS	(n=23)	(n=25)
41 - 45	8.6	20.0
46 - 50	34.7	24.0
51 - 55	30.4	28.0
56 - 60	13.4	20.0
61 - 65	8.6	8.0
83	4.3	-
TOTAL:	100.0	100.0
12 YEARS	(n=25)	(n=23)
75 - 99	44.0	47.8
100 - 124	48.0	43.6
125 - 200	8.0	8.6
TOTAL:	100.0	100.0

TABLE 62

Distribution of Height in Centimeters at 7 and 12 Years of Age for Academically Successful and Failing Children at 12 Years

Height in Centimeters	SUCCESS GROUP %	FAILURE GROUP %
7 YEARS	(n=25)	(n=24)
110 - 114	0	12.0
115 - 119	25.0	20.0
120 - 124	37.5	24.0
125 - 129	20.8	28.0
130 - 134	12.5	16.0
134	4.2	0
TOTAL:	100.0	100.0
12 YEARS	(n=23)	(n=25)
≤ 144	4.0	13.0
145 - 149	4.0	21.7
150 - 154	48.0	21.7
155 - 159	16.0	34.8
160	28.0	8.8
TOTAL:	100.0	100.0

Head size is an important physical attribute because of its recognized relationship with underlying brain growth. The distributions of maximum head circumference are shown in Table 63 for both groups

of children at birth, 7 and 12 years of age. The successful children had, on the average, distinctly larger head circumferences at each measurement period than the failing children. Perhaps the bigger head size, and somewhat larger body size, reflect more adequate nutrition pre and post natally and more favorable environments after birth.

TABLE 63

Maximum Head Circumference in Centimeters at Birth, 7 Years and 12 Years for Successful and Failing Children at 12 Years

Head Circumference (cms)	SUCCESS GROUP %	FAILURE GROUP %
BIRTH	(n=25)	(n=25)
≤ 32	8.0	24.0
32.5-35	84.0	60.0
> 35	8.0	16.0
TOTAL:	100.0	100.0
7 YEARS	(n=24)	(n=25)
≤ 50	21.7	48.0
51-52.5	56.6	52.0
≥ 53	21.7	0
TOTAL:	100.0	100.0
12 YEARS	(n=25)	(n=22)
52-54.5	24.0	54.6
55-56.6	28.0	31.8
≥ 57	48.0	13.6
TOTAL:	100.0	100.0

Morbidity

Morbidity may relate in a significant way to outcome but when the frequencies of illness and accident recorded during the first 8 years were examined, little difference between groups was identified. Both groups had a high frequency of respiratory infections, 409 total for the children who failed; 404 for those who were successful. Serious illness and accident were infrequent and seemed about equally distributed except that seizures occurred slightly more frequently among those who failed. Review of the records suggests that the successful children received medical care more often and more promptly than those in the failure group.

Discussion

From the above, it appears that, in general, the mothers of successful children had registered earlier for prenatal care and concomitantly, made more prenatal visits and had fewer complications of pregnancy than the mothers of failing children. There was a rather striking difference in birthweight, with only one of the 25 successful children as compared with 5 of the failing children weighing less than 2500 grams. The successful children were taller, somewhat heavier and had distinctly larger heads than the failing children, at birth, 7 years and later at 12 years.

While there seems to have been little difference in morbidity, the successful children appeared to receive somewhat more medical care which perhaps reflected a more adequate level of care, generally.

Thus, even though the failing group included no children with obvious physical or severe intellectual deficits, there appears to have been a distinctly higher frequency of unfavorable biological factors in the profiles of the unsuccessful children. The most striking biological characteristic is the superior average physical growth both pre and post natally of the successful children. One surmises that this reflects better care, particularly in nutrition. Malnutrition can result in inadequate brain growth and inadequate intellectual performance (Birch and Gussow, 1970). Nutrition may reflect adequacy of resources.

Pre-School Education

Early educational experiences were superficially quantitatively similar between the two groups of children. None of them were placed in a day care center. Three children in each group attended nursery school. Five (20%) in each group were in Head Start programs. When examined more closely, the records indicate that the successful children attended nursery school or Head Start for protracted periods while the failing children attended for only brief periods; thus, qualitatively, the experiences tended to be quite different. Twenty successful and 21 unsuccessful children had a history of kindergarten attendance.

SOCIO-ENVIRONMENTAL FACTORS

We turn now to an examination of the possible effect of certain socio-environmental factors as determinants of academic success or failure in 12 year old children. Possible relationships between environmental variables and outcome were examined using the constructs of the Social Well Being model as a basis for description and comparison.

(1) Family Stability

It can be postulated that the absence of divorce, separation, desertion and death would contribute to an environment of family stability and thereby be related to more successful outcomes for the child. A number of variables were examined, making use of the longitudinal data available.

Marital Status

Marital status alone did not discriminate clearly between the two groups. Approximately 55% of mothers in both groups were married at the time of the 12 year evaluation of the child. As a considerable amount of instability and change had been observed with respect to this variable over the 12 years since the child's birth, this variable was examined more closely by assessing change in status on an annual basis. Then different patterns began to emerge.

Among the families of successful children, 86% appeared to be stable and without change in status during the first two years of the child's life as compared with only 48% of the families with unsuccessful children. After three years, the percentages were little changed, 80 and 48 respectively. It has been suggested by some psychologists (Burton White, 1975) that the first three years of life are the most important formative years. If this position has validity then it can be argued that a stable family environment, as measured by the crude indicator of both natural parents living together, was observed for the great majority of successful children and for less than half of those who were unsuccessful.

Another indicator of stability was that, at the 12 year level, 52% of natural fathers were living with their children. This was similar for both groups, but where this was not the case, two-thirds of the fathers of successful children visited with their children frequently while only one-third of the fathers of unsuccessful children visited with their children.

An indicator of lack of family stability was separation from home and parents for a period of three consecutive months or longer. Although significant separation was observed for children in both groups, the average length of the separation was quite different.

The successful children were separated for only short periods while the unsuccessful children were separated for much longer periods. Clearly, the severity of multiple years of separation poses a greater threat to family stability, at least from the view point of the child, than just a few months.

Ordinal Position of Child

Although ordinal position of the child was not clearly related to marital stability, when these variables were examined in combination, a greater degree of discrimination between groups was achieved. The successful children in this population were much more often the first born, and if not first born, appeared earlier in the child production sequence. Almost half of the successful children were first born as compared with only one-third of the failures. It is suggested that the first born children are more likely to have enjoyed a greater degree of family stability and personal attention during the crucial first three years of life, circumstances which seem more probable in a stable family setting.

(2) Socio-Economic Status

In general, the mothers of successful children were motivated to a greater degree of upward mobility, aspired to higher status

positions and were more constructive in their efforts to attain these goals than the mothers of failing children. While both groups experienced a steady increase in average income per year over the 12 years, the successful group was already at a higher level at the time the child was born and the discrepancy, in mean income between the two groups, increased at each measurement level, and thus the difference between the groups widened progressively over time.

Parental Education

Maternal education, in terms of the highest grade or level completed, discriminated between the groups as one would expect. Two-thirds of the mothers of the successful children had completed high school or some more advanced level, as compared with only one-fifth of the mothers of less successful children. Among the mothers completing high school, two-thirds (66%) of those of successful children had additional educational experience as opposed to less than one-third (30%) in the failure group (a discrepancy of 36% between groups). In this population, the additional education, for the most part, represented technical training of some kind, though a few did pursue college level work.

Fathers in both groups were less likely to attain post-high school education than the mothers. However, a higher proportion

of fathers of the successful children completed high school and some college level education; one-third had completed at least one year of college education by the time of the 12 year evaluation of the child as compared with only one father in the failing group.

Occupation

Almost two-thirds of all the respondents were employed. Among the mothers of successful children, 62% were employed, in predominantly white collar or clerical type occupations, while mothers of failing children were more typically employed in factories or in unskilled occupations.

In this inner-city environment, approximately 90% of the fathers (or male partners who lived in the household) were employed at the time of the 12 year evaluation. The majority were in various 'blue collar' occupations. Of those engaged in clerical, white collar, managerial or professional activities, most were fathers of successful children. This is in accord with the finding that the fathers of successful children had, on the average, attained higher levels of education including university experience than those of children who failed.

While tentative, a global view of these three variables (income, parental education and occupation), suggests that the successful children had a generally more favorable socio-economic environment. Their

parents are better educated, they work in higher status occupations and they earn more money. Thus, they have command of more in the way of both material resources and information.

The data suggest that the mothers of successful children tend to have clearer goals, can articulate them and, most importantly, appreciate the steps required to attain them. This sense of direction and knowledge represent some of the family strengths passed on to the children.

It can be concluded, from this preliminary and superficial examination of the data, that the families of the successful children exhibited, on the average, a higher degree of social health and well being measured along the dimension of socio-economic status.

(3) Stress and Coping Ability

Over the 12 year period since the birth of the index child, these inner-city families faced considerable stress as defined by the number of crisis situations with which they were confronted. This was true for families of children in each group. Indeed, the families of successful children experienced a mean rate of stress as measured by 4 crisis per family. The average rate for the families of unsuccessful children was 4.8. This difference of almost 1 crisis per family may

be significant, but it would appear that the nature of the stressful episode was of more importance than the number.

The major areas of difference between the two groups were, as might be expected, related to socio-economic differences. Financial stress (insufficient money for the basic requirements of food and shelter) was experienced by large proportions of these inner-city families, 68% of the families of unsuccessful children as compared with 48% of those who succeeded. Unemployment was a major problem, experienced by 48% of the families of failures and 36% of those whose children succeeded.

Another area of difference related to the fact that a higher proportion of mothers of the failing children reported stressful problems with children in their households, such as drug usage (even death from overdoses) among the older children, more often (50%) as compared with the mothers of the successful children (30%). In addition, the former had considerably more difficulty with the police and the law (44%) as compared with the latter (24%). Finally, stressful situations relating to the school were noted for about half of the families of unsuccessful children and just under a quarter of those whose index children were successful.

It is of interest that with respect to some potentially stressful family affairs, there was little difference between the two groups at

the time index children were 12 years old. Marital discord was reported in 48% of the families of unsuccessful children and 56% of those who succeeded. The latter group also reported more problems with relatives and close friends (32%) as compared with the families of failing children (24%). One cannot help but reflect about the relative weight of various potentially stressful situations in a given family. For example, when confronted with drug problems and death, discord between relatives might seem inconsequential.

In summary, in this analysis, certain stressful circumstances, particularly those concerned with lack of financial resources for the bare necessities of life, exhibit a positive relationship with success or failure at school, while others, such as family discord, do not.

Given that stress is ubiquitous in this population, some ability to cope is essential. Are there differences between the two groups of mothers and children in their ability to deal satisfactorily with stressful situations, as they perceive the situation and their own ability? The assessment of coping ability was global rather than specific because of the many different stresses involved. In general, the pattern of response was in the expected direction, almost half (45%) of the mothers of successful children reported that they had coped very well, while only one-fifth (20%) of the mothers of unsuccessful

children perceived their coping skills as entirely adequate. However, when the categories of 'very well' and 'fairly well' were combined, no difference was observed between groups (68% of each were in this category).

The significance of stress is not necessarily the diversity, frequency or even the intensity of the stressful circumstances, but rather the response generated by it. It is suggested that 'coping very well' denotes a feeling of confidence that one is in control and establishes a constructive model for the child. It would be naive to think that children are unaware of family crises and their emotional overtones. Children undoubtedly observe the methods adopted for dealing with difficult life situations. If the parents deal competently and confidently with a problem, it is realistic to think that the child will use this role model in approaching dilemmas in his/her own life. This may, in turn, be reflected in school performance in accord with the child's basic intellectual capacity. Similarly, the children of parents who are unable to cope adequately with crises have inadequate role models for learning to deal with their own problems.

Thus, while exposure to stress does not per se relate clearly to academic outcome, the coupling with some measure of ability to cope provides a useful predictor variable, in terms of social health, for the academic success or failure of 12 year old children.

Appointments Required to Complete Study

An interesting difference between the two groups, which may relate, at least in part, to the mother's ability to cope, pertains to the number of appointments required to complete the 12 year evaluation (Table 64). The mothers of successful children required fewer appointments.

TABLE 64

Number of Appointments Required to Complete 12 Year Examination

Number Given	Total OCD Study (n=416) %	Children who Failed (n=25) %	Children who Succeeded (n=25) %
1	58.8	40.0	68.0
2	23.3	32.0	16.0
3	9.4	16.0	8.0
4	4.0	8.0	8.0
5	3.0	4.0	
6	1.0		
Total:	100.0	100.0	100.0

This response pattern in keeping appointments is similar to those observed at two prior examinations and seems to fit into the individual pattern for a given family.

(4) Social Participation

Social participation beyond the major requirements of the role of spouse, parent and worker is another dimension of the social well being model. Such additional participation in various aspects of community and cultural life should reflect enrichment of personal life. It would be expected, therefore, that parental participation in church, school and club activities would relate in a positive way to academic success in the child. A preliminary examination of the data pertaining to this dimension is only slightly supportive of this premise; the majority of respondents in both groups reported they attended church and were involved in school activities, particularly PTA. It might be argued that parents in both groups were fully occupied with providing the basic requirements of life, particularly as a high proportion of mothers were working and as almost half of the families were single parent, that there was neither spare time nor financial resources, let alone the energy required to permit much extension of effort beyond church and school. Furthermore, there may be qualitative and quantitative aspects to the data which have not been tapped in this descriptive analysis.

(5) Satisfaction (Perception of Worth)

We would anticipate that the more socially healthy respondents would manifest a more optimistic attitude and higher levels of satis-

faction with various aspects of life. We expected, then, that the parents of successful children would register more responses which denoted satisfaction than the parents of the less successful children.

The more successful group clearly saw their life situation as being better at the time the study child was seven years old than they had been at the birth of the child, as 71% of the respondents made such an evaluation. Of the failure group the corresponding percentage was only 59. This pattern did reverse, however, for the twelve year interval, with the failing children's mothers evaluating the present circumstances as better 84% of the time, while the success group remained at the 70% level. Of those respondents in both groups who did not think the situation was better, most did not feel it had worsened. Only 4% of the failure group thought they were worse off while 9% of the success group registered a negative evaluation. In both instances this is considerably better than that reported for the seven year interval where the percentages were 13 and 23 for the successful and failure groups respectively.

This pattern of 'no difference' is somewhat altered for the mothers of the two groups when they were asked how satisfied with life they are. Only 35% of the failure mothers are 'very satisfied' while 60% of the success mothers are. This difference is seen as being substantively significant. Although slight, the incidence of the failure mothers who

reported that they were highly satisfied decreased between 7 and 12, while the success group increased.

The question dealing with family harmony did not discriminate between the two groups. Approximately one-fourth of both groups thought they got along better then other families with the majority seeing their family harmony as about the same as that of others. Only 4% in both groups thought their family harmony was worse.

Almost 70% of the successful parents wanted to send their children to college while only one half of the failure group pursued this as an educational goal. Further, the perceived opportunity for accomplishing this desire differed. Less than half of the mothers in the failure group thought their chances were very good, although the remaining 56% did see their chances as fair; none of these mothers saw their chances as not being good. On the other hand, 56% of the parents of the successful children saw their chances of sending their children to school as very good, but 12% did not think their chances were good; perhaps a realistic appraisal.

The variables that seem to discriminate within this dimension deal with the respondent's level of satisfaction with life and their educational expectations for their children. The global assessment of their life for the last five years did not yield any differences, nor did family harmony.

Keeping in mind the crudeness of selection procedures, and the smallness of N's in each group, there does appear to be predictive power in some, but not all maternal attitudes.

ADDITIONAL STUDIES OF CHARACTERISTICS OF ADOLESCENT FAMILIES

The unexpected finding of an essentially even distribution of adolescent pregnancies in both the success group (7 mothers) and the failure group (6 mothers) prompted a closer examination of the data for these thirteen families in an effort to identify other variables which might have influenced outcome.

The age of mother at delivery is shown in Table 65. No real differences are noted.

TABLE 65

Age of Adolescent Mothers at Delivery of Children who were Successful or Failing at 12 Years of Age

Age of Mother	Success (n=7)	Failure (n=6)
14	1	-
15	1	4
16	2	-
17	3	2

Education of Mother

This variable showed striking differences between the small groups. Five of the seven mothers of successful children ultimately graduated from high school as compared with only one of the six mothers of failing children and four of the latter six did not complete 10th grade.

Source of Income

Six of the 7 mothers of successful children were wholly supported by earned income at the 12 year level, as compared with only 2 of the 6 mothers of failing children. Four of the 7 mothers in the success group had been employed for 8 years or longer, while 5 of the 6 mothers in the failure group were employed 2 years or less; for the sixth, there is no information on this point.

Marital Status

There seemed to have been a greater degree of marital stability among the adolescent mothers of successful children and four of the 7 were married at the time the baby was born as compared with only 1 of the mothers of failing children. While four of the mothers of successful children reported being married when the baby was born, only one claimed the husband as the head of the household; in two other instances,

it was the father-in-law and the remaining instance an aunt. Three mothers in this group lived with their own mothers while all 6 mothers in the failing group lived in their own mother's household at the time the baby was born. At the seven year follow-up, five of the 7 successful children were in a nuclear family, one child had been with the maternal grandmother for 4 years and one lived in a single parent family with her mother. At the 12 year follow-up, four of the 7 children were still in nuclear families and 3 were in single parent families with the mother. The experience of the 6 children who failed was significantly different. At the 7 year follow-up, 2 were in nuclear families and one in a single parent family (mother); 3 were in foster care, though in only one instance was this under the supervision of an agency. At the 12 year follow-up, 5 of the 6 failing children were in single parent families with their mothers, the exception being the one nuclear family in which a husband was present.

An examination of the family constellation and people in the household at each of the three points in time was of great interest. In the households where successful children lived, there was, at each point in time, at least one adult in addition to the mother in the household. In 6 of 7 families, this was the husband or in one instance, at the 12 year level, a boyfriend. In the remaining instance

where the mother had remained single (though she had 3 children), her grandmother lived in her household and helped to care for the children. In the 6 households of failing children, the mother was the head of the household in 5 instances. There was one nuclear family. One mother had been a widow for four years, another was divorced, two others separated (one from second husband). This woman, aged 29, had an 8 month old granddaughter, the child of her 16 year old daughter, in the household. With the exception of the one nuclear family, there were not other adults in these families. The mother lived alone with her children, who presumably lacked the help and stimulation an additional adult might have provided.

In summary, a closer examination of some of the data for the adolescent families in the successful and failing groups of children reveals the importance of variables already discussed earlier in the report, such as parental education, source of income and occupational history. New insights, in terms of the availability of more than one adult in the family, and general family stability were derived which also seem to relate to school performance at 12 years.

Summary

Comparisons along a number of dimensions were made between a group of academically successful 12 year olds and a group of low performers

academically. Though, the numbers in each group were small, only 25, and the definitions of academic success and failure arbitrary, some interesting findings appeared. The 25 children termed failures were selected from a considerably larger group of poor performers.

Academic performance in this population was, in general, very low as compared with national norms. Even though all children were ostensibly physically normal, i.e., without overt physical and/or intellectual deficits, review of events from the prenatal period on revealed a significantly less favorable biological background among the failing children. For example, the proportion of low birthweight was 5:1. Failing children had smaller head circumferences and were generally somewhat smaller physically than successful children, throughout.

The environments of failing children were less favorable. Parents had less adequate resources in terms of education, income and occupation as compared with parents of successful children. Parents of failing children experienced more severe stress and seemed to cope less well than those of successful children.

Finally, in both groups, there was considerable diversity. It is of interest that there were seven adolescent pregnancies in the success group; 6 among the failures. Education, family stability, occupation, welfare dependency and the number of adults in the household discriminate between groups. In 5 of 6 failing families, the mother was the only adul..

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